Supreme Court, U.S.
FILED

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No. ____

IN THE

Supreme Court of the United States

RICHARD SCHMIDT,
Petitioner,

v.

THE STATE OF LOUISIANA,
Respondent.

Petition for a Writ of Certiorari to the Louisiana Supreme Court

PETITION FOR A WRIT OF CERTIORARI

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QUESTION PRESENTED FOR REVIEW

I.

Whether, in a *criminal* prosecution, the admission of expert testimony regarding novel scientific evidence which is "shaky," or unreliable, because it has no "known or potential rate of error," and there are no "standards controlling the technique's operation," violates the due process clauses of the Fifth and Fourteenth Amendments to the Constitution.

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PETITION FOR A WRIT OF CERTIORARI

Petitioner Richard Schmidt respectfully requests that this Court issue a writ of certiorari to review the judgment of the Louisiana Supreme Court entered on September 28, 2001, to address the important question of federal law presented herein.

OPINIONS DELIVERED IN THE COURTS BELOW

The judgment of the Louisiana Supreme Court denying Richard Schmidt's petition for a writ of *certiorari* to the Louisiana Court of Appeal, Third Circuit, is not reported. A copy of that judgment is attached to this petition as Appendix A. The opinion of the Louisiana Court of Appeal, Third Circuit, dated July 26, 2000, affirming petitioner Richard Schmidt's conviction and sentence is reported as *State v. Schmidt*, 771 So.2d 131 (La.App.3 Cir.2000). A copy of this opinion is attached to this petition as Appendix B. The opinion of the Lousiana Court of Appeal, Third Circuit, dated July 29, 1997, affirming the district court's holding that expert testimony

regarding "viral DNA" evidence would be admissible at Schmidt's trial, is reported as *State v. Schmidt*, 699 So.2d 448 (La.App.3 Cir.1997). A copy of this opinion is attached to this petition as Appendix C. The opinion of the district court dated January 26, 1997, which held that expert testimony regarding viral DNA evidence would be admissible at Schmidt's trial is not reported. This opinion is attached to this petition as Appendix D.

STATEMENT OF THE GROUNDS ON WHICH THE JURISDICTION OF THE COURT IS INVOKED

The order of the Louisiana Supreme Court denying review of the judgment and opinion of the Louisiana Court of Appeals, Third Circuit, was issued on September 28, 2001. Consequently, this Court has jurisdiction under 28 U.S.C. § 1257. *See* Supreme Court Rule 13.1

CONSTITUTIONAL AND STATUTORY PROVISIONS INVOLVED

The Fifth Amendment to the United States Constitution provides, in pertinent part:

> No person shall . . . . be deprived of life, liberty, or property without due process of law;

The Fourteenth Amendment to the United States Constitution provides, in pertinent part:

> . . . nor shall any State deprive any person of life, liberty, or property, without due process of law . . .

STATEMENT OF THE CASE

INTRODUCTION

In *United States v. Scheffer*, 523 U.S. 303, 309 (1998), this Court noted that "the exclusion of unreliable evidence is a principal objective of many evidentiary rules," citing Federal Rule of Evidence 702, and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 589 (1993). Unfortunately, because *Daubert* does not *require* a district court to consider whether the novel scientific evidence being offered has a "known or potential error rate," and does not *require* the court to determine whether there exist "standards controlling the [scientific] technique's operation," the very real possibility exists that when novel scientific evidence is offered, it is little more than a random finding dressed up as scientific evidence. Moreover, a jury may be unable to fully evaluate such evidence, because its theoretical foundations are no longer a trial issue, the ruling on admissibility having already been made—outside its presence.

Schmidt submits that in *criminal* cases, due process, and its concomitant requirement that guilt be established beyond a reasonable doubt, preclude the use of "shaky" evidence *against* a defendant. Criminal convictions based on "shaky" evidence, even if it is "scientific," are an anathema to the Constitution. However, under *Daubert*, with its holding that *all* its factors are optional, such convictions are not just possible, they are inevitable.

Unquestionably, this Court's opinion in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993) was a turning point in the approach taken by courts to the admission of scientific evidence in judicial proceedings.[1] *All* courts, and *all* judicial proceedings—both federal and state. Because while the

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[1] Since it was handed down, *Daubert* has been cited in over 3,000 subsequent judicial opinions, both federal and state.

"question presented" in *Daubert* was limited to "the standard for admitting expert scientific testimony in a *federal trial*," *Daubert*, p.582, the reality is that the Federal Rules of Evidence have become *the* rules of evidence for many jurisdictions.[2] Perhaps the best illustration of that is the number of state jurisdictions that have chosen to adopt the *analysis* set forth in *Daubert*: thirty-three (33), at last count. Louisiana is among this group.

Daubert has two core holdings: first, that the *Frye*[3] test for the admissibility of scientific evidence was superseded by the adoption of the Federal Rules of Evidence, *Daubert*, p.587; and second, that Rule 702, operating in conjunction with Rules 104(a), 703, 706, and 403 of the Federal Rules of Evidence create the "inquiry" that a judge must conduct before deciding to admit novel scientific evidence. *Daubert*, pp.592-595. This inquiry was described as a "flexible" one, and this Court specifically held that "[m]any factors will bear on the inquiry, and we do not presume to set out a definitive checklist or test."

Most critical however, is the "optional" nature of each factor on the *Daubert* "checklist." As this Court emphasized in both *Daubert*, and *Kumho Tire Co., Ltd., v. Carmichael*, 526 U.S.137 (1999), the "checklist" is not a mandatory one—a court "*may* consider several more specific factors that *Daubert* said might "bear on" a judge's gate-keeping determination." *Kumho, supra*, p.150.

This Court acknowledged that the use of the checklist, without mandatory reference to a "general acceptance standard," could produce evidence that was "shaky." And when such

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[2] Forty-four (44) states, and the United States Military, have adopted the Federal Rules of Evidence, either as a whole, or in significant part. Jack B. Weinstein & Margaret A. Berger, *Weinstein's Federal Evidence*, Table of State and Military Adaptations of the Federal Rules of Evidence (Joseph M. McLauglin, ed., Matthew Bender 2d ed., 2001).

[3] *Frye v. United States*, 54 App. D.C. 46, 47, 293 F. 1013, 1014 (1923).

"shaky but admissible" evidence is offered in a *civil* case, it may well be that "[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof . . . [are an] appropriate means of attacking shaky but admissible evidence." *Daubert*, p. 596.

But what is true for civil cases is not necessary true for criminal cases. Moreover, the constitutional rights that protect criminal defendants have no parallel in civil proceedings.

This Court has considered the implications of *Daubert* in the context of a **criminal** proceeding only once—and then only to determine whether "shaky" or unreliable evidence could be offered *by* a defendant, in his *defense*. *See United States v. Scheffer*, 523 U.S. 303 (1998). Significantly, the Court excluded the use of such evidence *by* a defendant, even though its reliability rate may have been in the 85-90% range.

As will be shown below, when "shaky" evidence is used in a criminal case, *against* a defendant, that defendant's right to basic due process of law is offended. But unfortunately, that is precisely the type of scientific evidence that is being used against defendants in criminal proceedings throughout the United States—all under the rubric of Federal Rule of Evidence 702 and *Daubert*.

THE SPECIFIC FACTS OF THIS PROCEEDING

On July 23, 1996, Richard Schmidt, a prominent gastroenterologist in Lafayette, Louisiana, was indicted for the attempted second-degree murder of his mistress, Janice Trahan. The State of Louisiana alleged that Dr. Schmidt had attempted to murder Janice Trahan on August 4, 1994, by injecting her with the HIV virus. Although not alleged in the indictment, it was the State's theory of prosecution that Dr. Schmidt had obtained this virus from one of his patients, Donald McClelland, who was HIV positive, and then injected it into Janice Trahan.

Between the indictment and trial, the State informed Dr. Schmidt that it intended to offer "viral DNA" [4] evidence against him at trial, (through the testimony of an expert witness) in an attempt to prove that the HIV virus infecting Janice Trahan was the same virus as the one infecting Dr. Schmidt's patient. Specifically, the State represented that

> . . . the actual "DNA evidence" sought to be introduced by the state consists of testimony from Drs. Michael L. Metzker and Richard A. Gibbs regarding the epidemiology of the HIV-1 Virus contained within the victim, Janice Trahan, of Donald McClelland (a patient of the defendant), and thirty geographic local controls . . . Dr. Metzker utilized the recognized technique of polymerase chain reaction (PCR) upon the samples in question. . . . The state seeks to present, through the testimony of Drs. Metzker and Gibbs, the data generated mechanically from such testing.
>
> . . . Neither Drs. Metzker nor Gibbs will testify categorically that the HIV viruses within Janice Trahan and Donald McClelland are precisely the same. They will

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[4] Human DNA is non-mutating, and is usually analyzed using a methodology known as restriction fragment length plymorphism (RFLP). Viral DNA, particularly HIV DNA, mutates at a rapid rate. In this case, the viral DNA was analyzed as follows:

> The first step was . . . to obtain tissue samples from the individuals. The next step would be to extract DNA from thos tissue samples. The step after that would be to amplify using the polymerase chain reaction, the abbreviated PRC, specific sequences from the HIV genome from this DNA, from those DNA samples. After those had been amplified form the polymerase chain reaction—then they would be subjected to primary sequence analysis so that the actual base pairs from the DNA sequences, the specific target regions of the HIV would be sequenced. After the sequences were obtained, the sequences from the particular target individuals would be aligned; and then after the aligned sequences were obtained, they would be subjected to phylogenetic analysis, and then the phylogenetic analysis would be subjected to statistical testing.

> testify that the data generated by testing suggest that the HIV Isolates derived from Donald McClelland are close related to the HIV Isolates derived from Janice Trahan . . . [and will be] offered as simply one piece of many pieces of circumstantial evidence.

Such evidence had never before been offered in any judicial proceeding in the United States. Dr. Schmidt moved to exclude it, on the grounds that it did not meet the standards for the admissibility of scientific evidence established by *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).[5] Specifically, Schmidt contended that: (1) "the State [sought] to expand the realm of DNA testing, which normally consists of profiling and Restriction Fragment Length Polymorphism ('RFLP') analysis of human genes that are virtually identical and constant, to comparison of HIV DNA sequences that are inherently non-identical and inconstant . . . . and that the use of non-identical DNA in such a manner . . . **is unreliable** and is subject, in large part, to experimental and investigatory bias;" (2) that the "tests such as those relied upon by the State are based upon methodologies that are not sufficiently developed or universally agreed upon in the scientific community;" and (3) "that the analysis performed by the State's Expert, as evidenced in the State's Report, **is unreliable**, not probative as to the source of J[anice] T[rahan]'s HIV and is highly prejudicial to the defendant" (emphasis added).

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[5] In *State v. Foret*, 628 So.2d 1116 (La.1993), the Louisiana Supreme Court explicitly adopted the standards of *Daubert*, for use in interpreting La.Code Evid.Art. 702, which was identical to the pre-December 1, 2000 version of F.R.E. 702. Although Federal Rule 702 "has been amended in response to *Daubert*, " (Advisory Committee Notes, 2000 Amendments), La.Code Evid. Art. 702 has not.

An evidentiary hearing was held in the district court. Following two days of testimony, the court found that viral DNA evidence evidence was admissible:

> The state has the burden of showing that the underlying principle of analyzing HIV DNA is valid, and that the methodology and techniques employed are reliable. The state must show that the mtheods used in this case are (1) susceptible of empirical testing; (2) have been subjected to peer review and publication; (3) have an acceptably low rate of error; and (4) are generally accepted in the scientific community. The court finds that the state has met this burden.
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> * * *
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> **The court need not decide whether the methodology used by the state's experts is valid or reliable to show *direct transmission*** of HIV from one person to another, since the state does not intend to use if for that purpose. No reference by the state's expert witnesses to any likelihood or suggestion of direct transmission will be allowed at the trial.
>
> * * *
>
> With sufficient safeguards, such as stringent precautions by the state to refrain from any reference to direct transmission, testimony by defense experts, and carefully drafted jury instructions, the court has confidence that the jury will understand the circumstantial nature of the state's scientific evidence.

Appendix "D", pp. 99a-101a. (emphasis added)

However, as was established then, and at trial, the error rate of *phylogenetic analysis,* in terms of its ability to establish "relatedness," *i.e.,* **in terms of its ability to prove that for which it was being offered,** is *unknown.*

Dr. Schmidt sought *pre*-trial review from the district court's ruling, and in March, 1997, the Louisiana Court of Appeal, Third Circuit, agreed to hear oral argument on Schmidt's application for a supervisory writ. Following briefing, and oral argument, the Court of Appeal, Third Circuit, again relying on *Daubert*, affirmed the ruling of the district court finding expert scientific testimony regarding viral DNA evidence to be admissible. (Appendix "C", p. 72a). Although the Court of Appeal discussed the concept of the "error rate" of the phylogenetic analysis, it made no findings as to the degree of the error rate, or even whether the error rate was known. Schmidt then unsuccessfully petitioned the Louisiana Supreme Court for a writ of *certiorari*.

As might be expected, expert testimony from both State and defense witnesses regarding viral DNA testing became a focal point of Schmidt's trial.

Dr. William Gallaher and Dr. Bette Korber gave expert testimony on behalf of Schmidt. Dr. William Gallaher, a professor of microbiology, immunology, and parasitology at the Louisiana State University Medical Center, was offered by the defense, and accepted by the Court, and the State, as an expert in the field of microbiology and molecular genetics.[6]

According to Dr. Gallaher, because the rate of mutation for the HIV virus is only .5 to 1% per year the expected difference between the Janice Trahan sample and the Donald McClelland sample should only have been 1 to 2%—given that the two viral strains were alleged to have come from a common source only 13 months earlier. Dr. Gallaher found that with regard to the two samples, "[t]he regular minimum [difference] is 4%. The average is 7%, and the maximum is 10½%".

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[6] Dr. Gallaher received a Ph.D from Harvard in microbiology and molecular genetics, and was responsible for discovering the means by which the HIV virus enters the body at the cellular level.

Dr. Bette Korber was also called by the defense as an expert witness.[7] Dr. Korber was offered and accepted as an expert in molecular epidemiology and phylogenetic analysis. According to Dr. Korber, the risk factors for Trahan should have been identified, and taken into consideration when the "control group" was selected for the State's analysis, because "many studies that have shown that you can have different clusters of viruses, different groups of viruses, in different risk groups . . . .". Consequently, choosing a group that was very different from Trahan, as was done in this case, could easily have distorted the results, *i.e.*, the State's experts' finding of "relatedness". Like Dr. Gallaher, Dr. Korber found that there was an average 7% variation in the viral DNA sequences of the Donald McClelland and Janice Trahan samples. What would be expected would be a maximum variation of 3%. In Dr. Korber's words:

> . . . this percent here, this distance between JT and DM, which is the distance that averages to about 7% that we discussed before, it's too long. I don't see that kind of a distance typically in transmission cases. * * * This is really atypical for direct transmission.

In addition, Dr. Korber testified that

> all of the sequences, the viral sequences from JT, are completely distinct from all of the viral sequences from DM.

At trial Dr. Korber gave several examples of instances in which the "bootstrap values" (*i.e.*, the statistical findings upon which the State's experts based their conclusions of

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[7] Dr. Korber is the principal investigator at the Los Alamos HIV Data Base, and is on the visiting faculty at the Santa Fe Institute, which studies HIV DNA and related issues. Dr. Korber received her Ph.D in chemistry from the California Institute of Technology in 1987, and then studied molecular epidemiology at the Harvard School of Public Health. Dr. Korber is also a consultant to the United Nations on HIV and AIDS issues.

"relatedness") of HIV DNA pairs known to be *unrelated* were closer phylogenetically (and actually had bootstrap values of 100%) than the samples taken from Trahan and McClelland. What this demonstrated is the inability of *phylogenetic* analysis to distinguish between closely related pairs, and unrelated pairs on a phylogenetic tree. In short, the exceptions disproved the rule, and made the entire analysis scientifically suspect. More critical, however, was that the error rate of phylogenetic analysis, *i.e.*, the rate at which it will show "relatedness' between unrelated HIV DNA pairs was and is completely unknown. In other words, the scientific foundation for the entirety of the state's "scientific" evidence was "shaky."

In concluding her testimony at trial, Dr. Korber testified that the 7% difference between the virus in Trahan and the virus in McClelland was in fact ***more consistent with an alternative source of infection for Trahan than for direct transmission (via a shot from Dr. Schmidt).***

The defense evidence notwithstanding, Schmidt was found guilty as charged in October, 1998, and in February, 1999, he was sentenced to fifty (50) years imprisonment.

Schmidt appealed his conviction and sentence to the Louisiana Court of Appeals, Third Circuit, raising seven (7) issues, including the issue of whether the expert testimony regard viral DNA satisfied the requirements and standards of *Daubert*. In this appeal, he again argued that it was error for the district court to permit the introduction of the viral DNA evidence. The Court of Appeals rejected Schmidt's arguments:

> * * * The issue of admissibility [of expert testimony regarding viral DNA] came before this court in a pretrial writ application and, after briefing and oral arguments from counsel, this court issued an opinion in *Schmidt*, 699 So.2d 448. In the writ opinion, we determined that the methodology used by Dr. Metzker in his investigation satisfied the standards of *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S.Ct. 2786

(1993); *State v. Foret*, 628 So.2d 1116 (La.1993), and *State v. Quatrevingt*, 93-1644 (La.2/28/96); 670 So.2d 197, *cert. denied*, 519 U.S. 927, 117 S.Ct. 294 (1996).

Significantly, the Court of Appeals found that even if the DNA evidence offered was **unreliable**, because the its theoretical foundations lacked scientific validity, it would not be considered prejudicial:

> On the question of admissibility of the Metzker study, we find that there is no merit to Defendant's arguments that the trial court erred in admitting that evidence. In essence, what Defendant is attacking is the persuasiveness or weight of the experts' testimony, a decision which is left to the trier of fact.
>
> * * *
>
> Although we found that the phylogenetic analysis of the DNA of the HIV of D.M. and Trahan was admissible, whether or not this evidence proved that the HIV of D.M. was closely related to the HIV of Trahan is a question that goes to the weight of the evidence presented. It is improper for a reviewing court to reweigh that evidence. Rather, an appellate court determines whether that evidence, together with all other evidence, was sufficient for the jury to reasonably conclude that a defendant was guilty of the crime for which he was convicted.
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> * * *
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> * * * **Accordingly, even when unreliable DNA evidence is admitted at trial, we will not presume that such evidence is prejudicial to the defendant.**
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> * * *

Schmidt's petition for rehearing *en banc* in the Court of Appeals was denied, as was his subsequent application to the Louisiana for a writ of *certiorari* or review. He now seeks relief in this Court.

REASONS FOR GRANTING THE WRIT

I. THE COURTS OF THE STATE OF LOUISIANA HAVE DECIDED AN IMPORTANT QUESTION OF FEDERAL LAW THAT HAS NOT BEEN, BUT SHOULD BE, SETTLED BY THIS COURT.

In its opinion in *Daubert*, this Court concluded by "briefly addressing what appear to be two underlying concerns of the parties and *amici* in this case." *Daubert*, p.595. The first such concern was that "abandonment of 'general acceptance' as the exclusive requirement for admission will result in a 'free-for-all" in which befuddled juries are confounded by absurd and irrational pseudoscientific assertions."

The Court answered this concern as follows:

> In this regard respondent seems to us to be overly pessimistic about the capabilities of the jury and of the adversary system generally. Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence. See *Rock v. Arkansas*, 483 U.S. 44, 61, 107 S.Ct. 2704, 2714, 97 L.Ed.2d 37 (1987). Additionally, in the event the trial court concludes that the scintilla of evidence presented supporting a position is insufficient to allow a reasonable juror to conclud that the position more likely than not is true, the court remains free to direct a judgment, Fed. Rule Civ. Proc. 50(a), and likewise to grant summary judgment, Fed. Rule Civl. Proc. 56. Cf., *e.g.*, *Turpin v. Merrell Dow Pharmaceuticals, Inc.*,959 F.2d 1349 (CA6)(holding that scientific evidence that provded foundation for expert testimony, viewed in the light most favorable to plaintiffs, was not sufficient to allow a jury to find it more probable than not that defendant caused plaintiff's injury), cert.denied, 506 U.S. 826, 113 S.Ct. 84, 121 L.Ed.2d 47 (1992); *Brock v. Merrell Dow Pharmaceuticals, Inc.*, 874 F.2d 307 (CA5 1989)(reversing judgment entered on jury verdict for plaintiffs because evidence regarding causation

> was insufficient), modified 884 F.2d 166 (CA5 1989), cert. denied, 494 U.S. 1046, 110 S.Ct. 1511, 108 L.Ed.2d 646 (1990); Green 680-681. These conventional devices, rather than wholesale exclusion under an uncompromising "general acceptance" test, are the appropriate safeguards where the basis of scientific testimony meets the standards of Rule 702.

Daubert, supra, p.596.

What is missing from this discussion is a determination of whether these "conventional devices" are sufficient in a criminal case, when the novel scientific evidence is indisputably "shaky," or when it is not even known whether the evidence is shaky, because the court admitting such evidence has paid no attention to the "known or potential error rate" of the evidence—because *Daubert* does not require it to.

As noted above, since handing down *Daubert*, this Court has has considered its holding in that case in the context of a criminal prosecution only once—and then to consider the admissibility of evidence offered *by* a defendant. Numerous lower courts have considered the use of such evidence *against* defendants, however, and what has come into existence is a body of law endorsing the "shaky but admissible" approach, even in criminal cases:

> The district court conducted a lengthy hearing on admissibility of the DNA evidence under *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 592, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993), and held that any flaws in Dr. Deadman's application of an otherwise reliable methodology went to weight and credibility and not to admissibility. Most circuits that have spoken have agreed with this approach, *see, e.g., United States v. Johnson*, 56 F.3d 947, 952-53 (8th Cir.1995), relying on the view that "cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof" is the proper challenge to "shaky but admissible evidence." *Daubert*, 509 U.S. at 596, 113 S.Ct. 2786. The district

> court did not abuse its discretion in admitting the Deadman evidence. *United States v. Lowe*, 145 F.3d 45, 50-51 (1st Cir.), *cert. denied*, 525 U.S. 918, 119 S.Ct. 270, 142 L.Ed.2d 222 (1998).

United States v. Shea, 211 F.3d 658, 668 (1st Cir.2000).

See also: United States v. Dico, Inc., 266 F.3d 864, 872 (8th Cir.2001); *United States v. Barnette*, 211 F.3d 804, 816 (4th Cir.2000)—Psychopathy Checklist Revised admitted against defendant, even in the absence of evidence that the list had been standardized as to the black population, or as to the post-middle age population;*United States v. Jones*, 107 F.3d 1147, 1160 (6th Cir.1997)—expert testimony regarding handwriting analysis admitted, even in complete absence of evidence regarding the reliability of such testimony; and *United States v. Chischilly*, 30 F.3d 1144, 1152 (9th Cir.1994)—admission of DNA evidence even though the reliability of the statistical procedure used was not generally accepted by the scientific community, and the small population at issue invalidated the statistical procedure used.

The "net result" of the "shaky but admissible" approach in criminal cases has been the admission of plainly *unscientific* evidence:

> Regrettably, in a large number of jurisdictions, post-*Daubert* courts are circumventing any rigorous analysis in order to continue to admit expert testimony that is shockingly unscientific. (footnote omitted) Not infrequently, convictions have been based on evidence for which the scientific foundation is highly suspect. (footnote omitted) Continued admissibility in some jurisdictions of bitemark analysis, voiceprint evidence, and handwriting analysis can be accounted for only in this way, because there is virtually no empirical data on error rates for this kind of evidence, and what there is suggest that the so-

> called experts are wrong as often as they are right. (footnote omitted).[8]

To this list can now be added the phylogenetic analysis of HIV DNA.

In criminal cases, the reliability of a guilty verdict is a direct function of the standard of proof. The higher the state's burden of proof, the more likely it is that any guilty verdict is a "correct" verdict. However, when the state is allowed to use novel scientific evidence that may, or may not be *reliable*, the constitutional requirement that a defendant's guilt be established by proof beyond a reasonable doubt is completely undermined—because such evidence cannot produce such proof.

Just over thirty years ago, this Court decided *In re Winship*, 397 U.S. 358 (1970). In that case, the Court wrote:

> Lest there remain any doubt about the constitutional stature of the reasonable-doubt standard, we explicitly hold that the Due Process Clause protects the accused against conviction except upon proof beyond a reasonable doubt of every **fact** necessary to constitute the crime with which he is charged.

In re Winship, supra, p.364 (emphasis added).

When any one of those "facts" is a fact produced by an unreliable scientific methodology, the protections of the Due Process Clause evaporate. District courts, when confronted with novel scientific evidence, must be required to make findings regarding the regarding the "known or potential rate of error" of the evidence, and the "standards controlling the technique's operation." This Court should grant *certiorari* to consider this important federal question.

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[8] Beecher-Monas, Erica, *Blinded by Science: How Judges Avoid the Science in Scientific Evidence*, 71 Temp.L.Rev. 55, 66 (Spring, 1998).

II. THE COURTS OF THE STATE OF LOUISIANA HAVE DECIDED AN IMPORTANT QUESTION OF FEDERAL LAW IN A WAY THAT CONFLICTS WITH A DECISION OF A UNITED STATES COURT OF APPEALS.

As was argued above, the "reliability" of novel scientific evidence, as manifested through its known error rate, and the standards controlling the technique used to produce it, must be the linchpin of its admissibility—particularly in a criminal case. At least one federal circuit has recognized this fact, and has made some of the *Daubert* factors mandatory:

> We believe that the reliability inquiry set forth in *Daubert* mandates that there be a preliminary showing that the expert properly performed a reliable methodology in arriving at his opinion. The *Daubert* Court stated that "under the Rules, the trial judge must ensure that any and all scientific *testimony* or *evidence* admitted is not only relevant, but reliable." ___U.S. at ___, 113 S.Ct. At 2795. This suggests that the inquiry extends beyond simply the reliability of the principles or methodologies in the abstract. In order to determine whether scientific *testimony* is reliable, the court must conclude that the testimony was derived from the application of a reliable methodology or principle in the particular case.

United States v. *Martinez*, 3 F.3d 1191, 1198 (8th Cir.1993).

This Court should grant *certiorari* as a way of bringing uniformity to this aspect of the law.

CONCLUSION

Wherefore, the foregoing reasons considered, this Court is respectfully urged to grant Richard Schmidt's petition for a writ of *certiorari*.

New Orleans, Louisiana, this 21st day of December, 2001.

Respectfully submitted,

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APPENDIX A

THE SUPREME COURT OF THE STATE OF LOUISIANA

No. 2000-K-2950

STATE OF LOUISIANA,

vs.

RICHARD J. SCHMIDT.

IN RE: Schmidt, Richard J.;—Defendant; Applying for Writ of Certiorari and/or Review, Parish of Lafayette, 15th Judicial District Court Div. G. Nos. 73313; to the Court of Appeal, Third Circuit, No. 99-1412.

September 28, 2001

Denied.

PFC
CDK
BJJ
JPV
CDT
JTK
RLL

Supreme Court of Louisiana
September 28, 2001

/s/ Katherine A. Fontana
KATHERINE A. FONTANA
Clerk of Court
For the Court Deputy

APPENDIX B

COURT OF APPEAL THIRD CIRCUIT
STATE OF LOUISIANA

No. 99-1412

STATE OF LOUISIANA

Versus

RICHARD J. SCHMIDT

APPEAL FROM THE
FIFTEENTH JUDICIAL DISTRICT COURT
PARISH OF LAFAYETTE, NO. 73313
HONORABLE DURWOOD CONQUE, JUDGE

GLENN B. GREMILLION JUDGE

(Court composed of Judge Henry L. Yelverton, Judge Billie Colombaro Woodard, Judge Glen B. Gremillion)

Gremillion, *Judge*.

In this case, the defendant, Richard J. Schmidt, appeals his conviction and sentence of fifty years at hard labor for attempted second degree murder. For the following reasons, we affirm.

FACTS

The State charged Defendant, a medical doctor specializing in gastroenterology, with the attempted second degree murder of Janice Trahan, a nurse, alleging that he committed the crime on August 4, 1994, by injecting the human immuno-

deficiency virus (HIV) into Trahan under the guise of giving her a Vitamin B-12 shot. HIV is the virus which causes acquired immune deficiency syndrome (AIDS), a disease for which there is no cure and which is ultimately fatal.[1] Trahan testified that she is now HIV-positive and suffers from Hepatitis C, and that she became infected by those diseases when Defendant injected those viruses into her on August 4, 1994. She initially sought medical attention for symptoms of a viral infection on August 16, 1994, and was informed she was HIV positive on January 3, 1995.

The evidence at trial established that Defendant and Trahan were engaged in an extramarital affair for over ten years at the time the instant offense was committed. When they began their affair, both Defendant and Trahan were married. Trahan divorced her husband; however, Defendant's promises to divorce his wife were never fulfilled. According to the evidence, Trahan tried to end their affair many times, but Defendant either persuaded or coerced her into returning to him each time. The evidence also reflected that Defendant threatened or discouraged Trahan's other would-be suitors.

The evidence revealed that sex was the primary focus when Defendant and Trahan were together. Defendant did not like using condoms nor did he like Trahan using a diaphragm for birth control. According to Trahan, she did not take birth control pills because they gave her migraine headaches. As a result, she became pregnant four times by Defendant and, on three of those occasions, he pressured her into having

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[1] In *State v. Gamberella*, 633 So.2d 595, 602 (La.App. 1 Cir.1993), *writ denied*, 94-0200 (La. 6/24/94); 640 So-2d 1341 (footnote omitted), the court noted that the "phrase" 'acquired immunity deficiency syndrome (AIDS) virus' is a misnomer because the actual virus is the human immunodeficiency virus (HIV). AIDS is not the virus, but, rather, is a clinical syndrome which is diagnosed when a person, who is infected with the HIV virus, develops one of a certain list of infections."

abortions to terminate her pregnancies.[2] She did not terminate one of her pregnancies by Defendant, and, in March 1991, she gave birth to their son, J.T.[3] Their relationship continued until July 19, 1994, when Trahan told Defendant their affair was over after learning that he had returned to his wife.

In her testimony, Trahan described the mysterious circumstances surrounding the "shot in the dark" she received from Defendant. In early July 1994, Defendant gave Trahan a series of three Vitamin B-12 shots. The night of August 4, 1994, Defendant called Trahan and told her he was coming over to give her another B-12 shot. Trahan had not seen Defendant since the day of their break-up on July 19, 1994, and was asleep in bed with three-year-old J.T. when Defendant arrived. Trahan explained that she told him she did not want a shot at that time, but would rather it be given the next morning. Defendant, nonetheless, came around the bed and, before she could react, injected her in the arm. None of the previous B-12 injections had hurt, but Trahan testified that this shot was very painful, hurting all the way down her arm. Defendant then left suddenly, telling Trahan that he had to go to the emergency room of Hamilton Medical Center.

The shot continued hurting Trahan that night, and she thought she would have to go to the hospital to have it examined by a doctor. She called the emergency room at Hamilton Medical Center, but learned that Defendant was not there. Trahan then paged Defendant and, according to her, he returned the page from his office. She confronted him with the lie regarding his whereabouts, to which he responded that he had been on the third floor of the hospital. Trahan claims she then told Defendant about the pain she was experiencing from the injection and he apologized and told her he would not give her another "shot in the dark."

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[2] Trahan had abortions in August 1988, December 1988, and June 1989.

[3] Initials are used herein to protect the juvenile's identity.

The next day, Trahan testified that she told Meredith Poche, a nurse with whom she worked in the Intensive Care Unit of Lafayette General Hospital, about the unusual and painful injection. Poche testified that Trahan told her about Defendant's suspicious behavior and that she suspected that the injection was not a B-12 shot. According to Poche, Trahan told her because she wanted someone to know she had received the injection.

Trahan began suffering flu-like symptoms in the weeks following the August 4, 1994 "shot in the dark." According to Trahan, she continued seeing Defendant professionally after August 4, 1994, and, on August 12, 1994, he gave her a prescription for blood work. Trahan testified that Defendant told her that her blood work was normal, except that her "white count was a little low," and not to worry because she probably had a viral infection.

The first doctor, other than Defendant, to treat Trahan was Dr. Donner Mizelle, an optometrist, who had treated her since 1989. At her August 16, 1994 examination with Dr. Mizelle, Trahan complained of pain in her eyes, fatigue, and swelling of the lymph nodes in her head and neck. On August 29, 1994, Trahan was seen by Dr. Robert Martinez, a neurologist and sleep disorder specialist. She described having a migraine headache in July, as well as another more severe headache the weekend of August 27th and 28th. Dr. Martinez noticed that she had swollen lymph nodes in her head and neck. Trahan also complained that her throat was sore and had ulcers. Since these were classic symptoms of a viral infection, Dr. Martinez referred her to Dr. Bradley Chastant, an ear, nose, and throat specialist.

Dr. Chastant saw Trahan immediately and ordered a lymph node biopsy, which was performed on September 16, 1994. The results indicated a viral reactive infection. Because lymphoma, a malignancy of the lymph nodes, was a possibility, Trahan was referred to Dr. Luis Mesa, a cancer

specialist. Dr. Chastant relayed his findings to both Dr. Martinez and Defendant. Dr. Chastant recalled speaking with Defendant about Trahan's condition and later sending him a copy of his report.

Dr. Mesa first examined Trahan in the hospital on September 16, 1994. Before Dr. Mesa saw Trahan, Defendant called and spoke with him about her condition. According to Dr. Mesa, Defendant suspected Trahan had a viral infection. However, Dr. Mesa testified that Defendant told him that an HIV test was performed on Trahan before September 1994, and that it was negative. As a result of the conversation, Dr. Mesa did not order further HIV tests, but noted the negative HIV test result in his report.

On November 21, 1994, Trahan saw her dentist, Dr. Neil Bernard. Dr. Bernard noticed that Trahan's gums were inflamed, her lymph nodes were swollen, and her white blood cell count was elevated.

Finally, Trahan went to her obstetrician-gynecologist, Dr. Wayne Daigle, for her annual checkup. Dr. Daigle cared for her during her pregnancy with J.T. and had previously consulted with her in July 1994 about headaches resulting from her use of birth control pills. On December 15, 1994, Dr. Daigle noticed that Trahan had lost weight, suffered malaise, and had other symptoms indicative of a viral infection. She told Dr. Daigle that Defendant had done lab work on her, but Dr. Daigle decided to order new tests. At first, Dr. Daigle suspected Hepatitis A or B, but, as an afterthought, he added an HIV test just to be thorough. On December 20, 1994, Dr. Daigle was informed by the testing laboratory that Trahan was HIV positive. He waited until after the Christmas/New Year holidays to tell her the test results. When Dr. Daigle told Trahan that she was HIV positive, she asked him to inform Defendant. Since Defendant had office space in the same building as Dr. Daigle, Dr. Daigle called Defendant and met him at the back door of their

building. Dr. Daigle testified that Defendant appeared shocked when he was first informed that Trahan was HIV positive, but was adamant that he knew he was not HIV positive, that he felt fine, and that he did not need to be tested.

Dr. Daigle knew that Defendant and Trahan had been involved in a ten year relationship and that sexual intercourse was a common way HIV was spread. As such, Dr. Daigle presumed that Defendant was HIV positive also. When Defendant telephoned Dr. Daigle at the hospital later that evening, Dr. Daigle offered to have him tested for HIV anonymously through his office. Defendant again declined, saying he saw no reason for an HIV test. Dr. Daigle testified that he also told Defendant that the Louisiana State Board of Medical Examiners would eventually be notified that he was potentially HIV positive; however, Defendant maintained that he felt no need to be screened for HIV.

Dr. Daigle further testified that, during the telephone conversation, Defendant suggested the possibility that Trahan was infected with the HIV virus either through her contacts with AIDS patients at work, from her other sexual partners, or from dirty instruments used at the abortion clinics where she underwent abortions. Dr. Daigle responded that, since Trahan was a heterosexual female and not an intravenous drug abuser, he did not believe she was infected with HIV by the means suggested by Defendant, but that she had been infected by sexual intercourse. Dr. Daigle eventually referred her back to Dr. Mesa.

Also treating Trahan was Dr. Ernest Wong, a pulmonologist and one of the first physicians in Lafayette to specialize in the treatment of HIV and AIDS. His specialization in this field began in 1983, because most patients who were suffering from AIDS experienced respiratory problems and were referred to him for treatment. Dr. Wong testified that HIV is transmitted to a person by sexual intercourse, through blood products, or intravenous

injections, and that HIV is still considered a fatal disease for which there is no cure. Dr. Wong first saw Trahan as a patient on January 23, 1995. While taking her history, Trahan told him about the suspicious shot given to her by Defendant in the first week of August 1994, and that Defendant ordered blood work for her in September 1994. Dr. Wong noted that no HIV test was performed on that blood work. He further testified that Trahan was exhibiting the classic symptoms of an HIV infection by September 1994. During his testimony, Dr. Wong also noted that Trahan was a regular blood donor and had made a blood donation in April 1994. According to Dr. Wong, a test of that blood donation was negative for both HIV and Hepatitis C. Based upon the phase of the victim's infection, Dr. Wong estimated that Trahan had been infected with HIV in the first week of August 1994.

Dr. Wong also treated D.M.,[4] the person whose blood was believed to be the source of the HIV injected into Trahan. Dr. Wong treated both D.M. and Trahan for their HIV with the drug AZT. Defendant argued that D.M.'s HIV is considered AZT-sensitive, while Trahan's HIV is considered AZT-resistant. He, therefore, claimed that this distinction refuted the State's assertion that he used D.M.'s HIV-tainted blood to infect Trahan. Dr. Wong, however, explained that such a conclusion is not entirely correct. According to Dr. Wong, D.M.'s HIV is AZT sensitive because his T-cell levels, an indication of how the virus is progressing, would decline when he took AZT in combination with other drugs, and those other drugs may have increased the effectiveness of the AZT. Dr. Wong further testified that Trahan also had a "nice drop" in her T-cells when she took AZT in combination with other drugs.

The State called five of Trahan's former sexual partners as witnesses. The men testified that they were tested recently for HIV and that their results were negative. The State and

[4] Initials are used to protect this individual's identity.

Defendant also stipulated that one other sexual partner of Trahan was HIV negative. Another man who dated her also testified that they never had sexual contact.

After Trahan learned she was HIV positive, she informed the hospital where she worked, as well as other authorities, about her condition. According to Julie Sellers, the Infection Control Coordinator for Lafayette General Hospital, who monitored exposures among employees to infectious diseases such as HIV, Trahan was not in an "exposure prone" job such as surgery, nor was she exposed to HIV patients. Further, hospital records showed that Trahan had no reported incidents of exposure, though she told Sellers of an incident in 1985, in which an AIDS patient coughed on her.

Throughout the trial, Defendant emphasized the fact that Sellers' notes show that Trahan revealed only three of her sexual partners. However, Sellers testified that she did not ask Trahan about the number and identity of her sexual partners, as that did not appear to have been part of her duties as Infection Control Coordinator. Instead, Sellers recounted that Trahan mentioned some names during their counseling sessions as if she were "thinking out loud," even though she did not question her about her sexual partners.

After Trahan filed a criminal complaint against Defendant, Captain James Craft, then a detective with the Lafayette Police Department, led the investigation into the complaint. He met Trahan at the District Attorney's Office and, based upon information he received, obtained search warrants for Defendant's office and home, as well as for a sample of Defendant's blood.

The search warrants were executed on July 13, 1995, at Defendant's office. Detective Craft waited until Defendant saw all of his patients and closed his office for the day before conducting the search. When Defendant began asking questions and making statements, Detective Craft informed him of his *Miranda* rights. Defendant told Detective Craft

that he was HIV negative and that forcing him to be tested would ruin his medical practice. When Detective Craft asked Defendant for the file on Trahan, Defendant told him that he had last treated her in 1990. However, Defendant's medical file on Trahan indicated that he received her blood tests results as late as August 1994.

The search of Defendant's office produced two spiral notebooks in the procedure room where blood and other patient samples were drawn. Defendant called these notebooks "jot books." One of the jot books seized had entries for blood draws from March 1, 1993 to December 10, 1993. Another jot book contained the same type of entries from August 15, 1994, to July 13, 1995, the date of the search. When Detective Craft asked Defendant for the notebook containing the entries from December 11, 1993, to August 14, 1994, Defendant claimed he did not know where that notebook was located. A 1993 pocket calendar containing photocopies of sexually explicit photographs of Trahan was discovered on the top of Defendant's desk during the search of his private office.

The missing jot book containing the entries from December 14, 1993, to August 4, 1994, was discovered by Detective Craft in a large box labeled "1982 records" in a messy and disorganized storage room behind Defendant's private office. This box was beneath another large box of records from the 1980's. Detective Craft testified that, other than the jot book, he did not find anything else from the 1990's in the storage room. The jot book began with entries for December 14, 1993, and ended with entries for blood draws on August 4, 1994. The remaining portion of the notebook after the August 4, 1994 entries was not used and contained a large number of blank pages.

Detective Craft focused his investigation upon an entry for August 4, 1994, as it was different from all of the other entries in the three jot books. Detective Craft testified that the

entries consisted of the date of the blood draw, the patient's name, the tests to be performed, and a numbered accession sticker. Each accession sticker in the jot book corresponded to a matching accession sticker attached to a vial containing blood. The numbers on the accession stickers were used to cross reference the test results with the patient. On August 4, 1994, one entry had the date and patient's name, but did not include a test to be performed or an accession sticker. Instead, the entry said "Lavender stopper for Dr. S." According to Detective Craft, further study of the jot book revealed another near identical entry for a blood draw from patient, L.L.,[5] on August 2, 1994. That entry contained the notation "(Purple Top for Dr.)"

L.L., the patient from whom blood was drawn on August 2, 1994, was a Hepatitis C patient. The patient from whom blood was drawn, but no tests ordered or accession sticker used on August 4, 1994, was D.M., the AIDS patient who was also being treated by Dr. Wong. Both L.L. and D.M. gave Detective Craft consent to obtain their medical files from Defendant. However, after Detective Craft obtained a search warrant for D.M.'s medical file, it could not be located at Defendant's office. In August 1996, almost one year after the initial search of Defendant's office for D.M.'s medical file, Detective Craft was notified by one of the attorneys representing Defendant that D.M.'s medical file was at his office. Detective Craft retrieved the file, but it contained no reference to the August 4, 1994 blood draw. D.M.'s medical chart was inconsistent not only with the jot book entry of August 4, 1994, but also with Defendant's billing records. The billing records for D.M. and L.L. were introduced during trial. It was the procedure in Defendant's office that his staff issue a "super bill" each time a patient came into the office, which was sent to the company that billed the patient's

[5] Initials are used to protect the individual's identity.

insurance companies.[6] The super bill for D.M., prepared on August 4, 1994, had a check mark in the block entitled "Drawing Fee," but the check mark was crossed out without explanation.

D.M. testified that he went to Defendant's office on August 4, 1994, for blood tests and a Vitamin B-12 shot in anticipation of a colonoscopy. D.M. was diagnosed HIV positive in 1990, and, in 1992, his condition deteriorated to the point that he developed AIDS. D.M. was also treated by a number of physicians for a form of cancer known as non-Hodgkins lymphoma, but, as of August 4, 1994, he was no longer receiving chemotherapy. He was treated intermittently by Defendant for gastrointestinal problems, and, because he had a family history of colon cancer, he requested a colonoscopy before school started in August 1994.

There was considerable controversy surrounding D.M.'s recollection of the August 4, 1994 blood draw because he did not remember seeing how the "D" in his name was misshaped until several weeks before the trial. In prior statements and a deposition taken as evidence in civil litigation, D.M. never mentioned this fact. However, in his first statement to authorities, D.M. said that, although he did not specifically recall the particular blood draws at Defendant's office in July and August 1994, he was certain that he would see Defendant, receive a B-12 shot, and have blood drawn for

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[6] The "super bill" is a 8 1/2 x 14 inch printed form for Billing Inquiries and Insurance Information, which lists Procedures, together with Code and Fee charged for each procedure. The form also contains a list of Descriptions of various medical conditions, together with their Code and a place to check off each condition. For example, on D.M.'s August 4, 1994 super bill, the Procedure checked is listed under the heading "Injection" entitled "B-12 Injection," with a code number "J3420." The check mark which is scratched through is under the heading "Injection," entitled "Drawing Fee" with a code number "36415." Also placed on D.M.'s super bill is a check mark under "Description" for medical condition, "Anemia (Unspecified)" with a code number "285.9."

further testing every time he went to Defendant's office. It is noted that D.M. filed a civil lawsuit against Defendant for monetary damages because his employment as a teacher was threatened since the criminal proceedings exposed his AIDS to the public.

L.L. testified that she was a patient of Defendant since May 1993. She contracted Hepatitis C from the abuse of intravenous drugs, sex, blood transfusions, and excessive alcohol consumption. According to L.L., each time she went for her regular four-month visit, she received a prescription from Defendant to have blood drawn at the hospital. Her insurance did not cover blood drawn at Defendant's office, but, instead, required her to have it drawn at Our Lady of Lourdes Hospital. However, L.L. recalled that the only time Defendant drew her blood at his office was on August 2, 1994. She testified that Defendant claimed he was conducting his own private study of Hepatitis C and asked her for a blood sample. She acquiesced only after Defendant agreed that she would not be charged. L.L. testified that Defendant's office nurse, Geraldine Sonnier, then drew a sample of her blood. She further testified that she also had blood drawn at Our Lady of Lourdes Hospital on that same day for tests ordered by Defendant. L.L. claimed that, when she returned to Defendant's office in December 1994, she asked about the tests and his study, but Defendant replied that he "did not find anything." Like D.M., L.L. also filed a civil lawsuit against Defendant because her name and her condition became public as a result of this criminal matter.

Defendant's office staff denied drawing blood from either L.L. or D.M. on the dates at issue. Although Sonnier identified her handwriting on the jot book entries for L.L. and D.M., she testified that she did not recall drawing blood from either patient. She noted that D.M.'s medical chart did not show that he had blood drawn on August 4, 1994. Sonnier

was adamant that, if the medical charts or files of the patients did not show that blood was drawn, then she did not draw blood.

Concerning the disappearance of the jot book containing the August 2 and 4, 1994 entries, Sonnier testified that she simply used a sheet of loose paper from a notebook when she could not find the jot book. According to her testimony, the first day she had to use a loose sheet of paper was August 5, 1994. She testified she told the other employees the jot book was missing, but did not inquire as to its whereabouts.

Toni Lalonde, Defendant's receptionist, testified for the purpose of identifying the appointment book used in his office. Lalonde knew L.L. personally and testified that she did not have blood drawn at Defendant's office on August 2, 1994. Lalonde also stated that D.M. did not have an appointment listed in the appointment book for August 4, 1994. She acknowledged under cross-examination that there were numerous erasures of entries with other information written over them on both August 2 and 4, 1994. We note that the appointment book has erasures on other dates both before and after August 1994.

The State also presented evidence about the nature of the relationship between Defendant and Trahan. Trahan testified that Defendant was possessive of her and became enraged whenever she wanted to end the relationship. The evidence showed that Defendant threatened Trahan with publication of the sexually explicit photographs, and he threatened to tell officials at the University of Southwestern Louisiana (USL) that she had cheated by allowing him to write her papers. There was also evidence that Defendant threatened at least one of her boyfriends.

Barry Bleichner testified that he met Trahan at a 1993 New Year's Eve party, and the two began dating in early 1994. At the end of May 1994, Bleichner invited Trahan to a crawfish boil, but testified that she cancelled because of Defendant's

anger upon learning of their dating. According to Bleichner, Defendant telephoned him a week later; told him that he knew about their dating; and gave intimate details of Bleichner's relations with Trahan, some of which were incorrect. Bleichner explained that Defendant alternated between anger and calm during their conversation. At the end of the conversation, Defendant made a veiled threat to Bleichner by saying he knew where he lived. After the conversation, Bleichner claimed he called a friend, who was a policeman, to see if he should secure a peace bond or other court order against Defendant. Bleichner testified that Defendant called him back minutes later and apologized. Bleichner further testified that, a week later Defendant drove up while he was working in his front yard, got out of his car, and asked him to return some photographs Trahan had given him of herself. According to Bleichner, when he told Defendant he would be glad to return them to Trahan, but not to him, Defendant asked him if he wanted to fight. Bleichner recounted that he did not take Defendant seriously, even after Defendant asked him to take off his sunglasses. Bleichner claimed Defendant then stated, "if you see Janice again, I am going to kill you."

The evidence also reflected that Defendant took sexually explicit photographs of Trahan, and of himself with Trahan, early in their relationship. Defendant used the threat of publicizing the photographs when Trahan wanted to end their relationship. On one occasion, when Trahan tried to end the relationship, Defendant threatened to post copies of the photographs throughout the hospital where she worked. These photographs were seized by police during the July 13, 1995 search of Defendant's office.

To prove Defendant threatened to accuse Trahan of cheating, the State called several members of the faculty and staff of USL as witnesses. Dr. Gail Poirrier, acting Dean of the School of Nursing and the department head in the Spring

of 1990, testified that she received frequent, anonymous telephone calls from a man claiming to have written some of Trahan's papers. The caller initially would not identify himself, but, after calling for three weeks, finally identified himself as Dr. Schmidt. According to Dr. Poirrier, this was about one week before graduation and he told her that he wanted to come clean about what he did for Trahan. Dr. Poirrier found it unusual that Defendant suggested that the university punish Trahan by prohibiting her graduation. She further testified that, during the course of these telephone calls, she questioned some of Trahan's instructors as to whether they thought Trahan cheated, and they felt she had not. Dr. Poirrier claimed that she informed Defendant that cheating allegations were handled by the Dean of Student Personnel and that she turned the matter over to that office.

Dr. James Clark, the Dean of Student Personnel in the Spring of 1990, investigated charges of student cheating. He testified that he called Defendant's office and asked Defendant to contact him, but Defendant never called back. Dr. Clark then turned the matter over to his assistant, Dr. Cheryl Evans, who wrote Defendant and asked him to contact her by July 13, 1990. However, since Dr. Evans never received a response from Defendant, nothing came of the allegations and Trahan graduated with a nursing degree.

Defendant contended that he did not and could not have gone to Trahan's home on August 4, 1994. His wife, Barbara Schmidt, testified that she was with Defendant on the night of August 4, 1994, from 8:00 p.m. until the next morning. The only time that she could not account for Defendant's whereabouts was during the twenty minutes that she was bathing. Defendant argued that it would have been physically impossible to drive to Trahan's home, administer an injection, and return to his home within twenty minutes. Corporal Rodney Ward, the training coordinator and traffic accident reconstructionist of the Lafayette Police Department, testified

that Defendant lived five miles from Trahan and he was able to drive from Defendant's house to Trahan's house during the evening hours (10:05 p.m.) in eight minutes and thirty-six seconds and from Trahan's house to Defendant's house in eight minutes and fourteen seconds.

Defendant further contended that he would have had to act quickly to enter Trahan's home, administer the injection, and leave, even if the distance could have been covered in less than twenty minutes. He presented evidence from his wife, his office personnel, and his treating physician that he strained his back at the end of July 1994 and was rendered physically incapable of quick movement.

Defendant established that he strained his back while lifting luggage at a seminar in late July 1994. Yet, the evidence reflects that he went to work at his office and performed hospital procedures as usual and did not seek medical attention until early September 1994. In August 1994, Defendant called Dr. Thomas Bertuccini, a neuro-surgeon, about his back strain. Dr. Bertuccini noted that Defendant tolerated his condition reasonably well. When Defendant went to see Dr. Bertuccini on September 6, 1994, he told Dr. Bertuccini that he hurt his back in late July while lifting luggage and again in early August while lifting heavy boxes at his office. Mrs. Schmidt also testified that Defendant told her he re-aggravated his back injury in the middle of August while lifting heavy boxes at his office. We note that the lifting of heavy boxes by Defendant in his office in August 1994 is consistent with the State's theory that he hid the jot book containing the August 4, 1994 notations at the bottom of a stack of file storage boxes in his office.

The remainder of the witnesses were experts who testified about the phylogenetic analysis conducted on Trahan's and D.M.'s HIV to determine if their viruses were related. According to the State, the purpose for the introduction of this evidence was to show that D.M. could not be excluded as

the possible source of the HIV injected into Trahan, rather than to prove that D.M. was the actual source of the HIV. This evidence and the testimony of the experts will be discussed more fully in assignments of error numbers one and five.

ASSIGNMENT OF ERROR NUMBER ONE

In this assignment of error, Defendant attacks the evidence presented against him, particularly the State's theory of the case. According to Defendant, the State's proof was limited by the indictment and the bill of particulars. The State used a short-form indictment against Defendant and later, in response to his discovery request, furnished him a bill of particulars giving details about how he attempted to kill Trahan.

Defendant contends that the State had to prove that he acquired HIV tainted blood, that he injected Trahan with the blood, and that this injection was the source of her HIV. Defendant focuses on three areas of weakness in the State's case: (1) whether D.M. was the source of the HIV injected into Trahan; (2) whether he gave her the "shot in the dark" on August 4, 1994; and (3) whether the State excluded other possible sources of Trahan's HIV. However, attempted second degree murder is proven when a defendant, having the specific intent to kill, does an act for the purpose of or tending to accomplish his object to kill another person. *See* La.R.S. 14:27 and 14:30.1. Therefore, the State did not have to prove that Trahan became HIV positive as a result of the injection administered by Defendant. The State only had to prove that Defendant administered the suspect injection to Trahan and that he intended her death as a result of the injection.

The State presented direct evidence (Trahan's testimony) that Defendant gave Trahan an injection on August 4, 1994. The victim's testimony may be sufficient to prove the elements of the offense, even when the State does not

introduce medical, scientific, or physical evidence to prove that the defendant committed the offense. *State v. Turner,* 591 So.2d 391 (La.App. 2 Cir. 1991), *writ denied*, 597 So.2d 1027 (La.1992). In this case, the jury apparently believed Trahan's testimony, and we do not find it unreasonable for the jury to have done so. *State v. Hobley,* 98-2460 (La. 12/15/99); 752 So.2d 771.

All other evidence against Defendant was circumstantial in nature. When a conviction is based on direct and circumstantial evidence, the facts established by the direct evidence and the facts reasonably inferred from the circumstantial evidence must be sufficient for a reasonable juror to conclude, beyond a reasonable doubt, that the defendant was guilty of every essential element of the crime. *State v. Jacobs,* 504 So.2d 817 (La.1987). The rule as to circumstantial evidence is that, assuming every fact to be proved that the evidence tends to prove, in order to convict, it must exclude every reasonable hypothesis of innocence. La.R.S.15:438.

> [W]hile an evaluation of other reasonable hypotheses of innocence provides a helpful methodology for determining the existence of reasonable doubt, the reviewing court does not simply determine whether there is another hypothesis which could explain the events in an exculpatory fashion. Rather, the reviewing court evaluates the evidence in the light most favorable to the prosecution and determines whether any alternative hypothesis is sufficiently reasonable that a rational juror could not have found proof beyond a reasonable doubt.

State v. Joseph, 98-48, pp. 3-4 (La.App. 3 Cir. 7/1/98); 716 So.2d 927, 929, *citing State v. Captville*, 448 So.2d 676 (La. 1984).

As we noted, a conviction of attempted second degree murder, in violation of La.R.S. 14:27 and 14:30.1(A), requires a finding that the defendant had the specific intent to

kill and that he committed an act for the purpose of and tending directly toward accomplishment of his object.[7] Specific intent is defined by statute as the state of mind which exists when the circumstances indicate that the offender actively desired the prescribed criminal cdnsequences to follow his act or failure to act. La.R.S. 14:10(1). The specific intent or state of mind of a defendant may be proven directly as a fact or may be proven circumstantially by inferences drawn from the circumstances of the transaction and the actions of the defendant. *State v. Guillory*, 95-383 (La.App. 3 Cir. 1/31/96); 670 So.2d 301, *citing State v. Turner*, 626 So.2d 890 (La.App. 3 Cir. 1993), *writ denied*, 93-3182 (La. 4/4/94); 635 So.2d 1122.

Although specific criminal intent is subjective in character, the State may establish it by direct evidence. Generally, direct evidence of a defendant's state of mind or his specific intent will consist of the statements or admissions of the defendant. *State v. Williams*, 95-879 (La.App. 3 Cir. 1/31/96); 670 So.2d 414. However, in the absence of an admission of such intent by a defendant, the State must prove the defendant's specific intent by circumstantial evidence. In this latter situation, the defendant's specific intent or state of mind will be something that cannot be seen, photographed, or observed visually by the trier of fact, but must be inferred from all circumstances established at trial. *State ex rel. Hillman*, 353 So.2d 1356 (La.App. 3 Cir. 1977), *citing State v. Jones*, 315 So.2d 650 (La.1975).

Circumstantial evidence consists of the proof of collateral facts and circumstances from which the existence of the main fact, specific intent, may be inferred according to reason and common experience. *Guillory*, 670 So.2d 301, *citing State v. Donahue*, 572 So.2d 255 (La.App. 1 Cir. 1990). The circumstantial evidence rule does not require the State to

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[7] For attempted second degree murder the defendant must have the specific intent to kill and not simply an intent to inflict great bodily harm.

exclude every possible theory of innocence, but only the reasonable hypotheses of innocence. *State v. Lilly*, 468 So.2d 1154 (La.1985). In circumstantial evidence cases, the reviewing court does not determine whether another possible hypothesis suggested by a defendant could afford an exculpatory explanation of the events. Rather, we evaluate the evidence in the light most favorable to the prosecution and determine whether the possible alternative hypothesis is sufficiently reasonable that a rational juror could not have found proof of guilt beyond a reasonable doubt under *Jackson v. Virginia*, 443 U.S. 307, 99 S.Ct. 2781 (1979). *State v. Davis*, 92-1623 (La. 5/23/94); 637 So.2d 1012, *cent. denied*, 513 U.S. 975, 115 S.Ct. 450 (1994).

This is not the first case in Louisiana in which a defendant has been convicted of attempted second degree murder for exposing a victim to the HIV virus. In *State v. Caine*, 94-0119 (La-App. 1 Cir. 3/3/95); 652 So.2d 611, *writ denied*, 95-0860 (La. 10/27/95); 661 So.2d 1358, the court upheld the defendant's conviction for attempted second degree murder of a convenience store clerk. In *Caine*, the clerk saw the defendant trying to steal merchandise and she attempted to force the defendant to leave the store. The defendant stabbed her with a needle, that was possibly contaminated with the HIV virus, and said, "I'll give you AIDS." The defendant alleged that the State failed to prove specific intent to kill. The court found that the action of the HIV-positive defendant, in attacking the victim with a syringe, proved that he had the specific intent to kill her and, thus, upheld his attempted second degree murder conviction.

In this case, Defendant claims that the State's case rests on two points: (1) that D.M. was the source of the HIV blood injected into Trahan; and (2) that the drawing of the HIV blood from D.M. and injection of this HIV into Trahan must have occurred on August 4, 1994. Defendant relies primarily

upon his claim that D.M.'s HIV is AZT-sensitive,[8] whereas Trahan's HIV is AZT-resistant, to establish a reasonable doubt that D.M. was the source of Trahan's HIV infection. However, Dr. Wong explained that classifying D.M.'s HIV as AZT-sensitive was misleading. According to Dr. Wong, the dramatic improvement in D.M.'s condition occurred whenever D.M. took AZT in combination with other drugs, but there was relatively little improvement when D.M. took AZT by itself. Also, Dr. Wong noted that D.M.'s condition had deteriorated into AIDS, while Trahan suffered from Hepatitis C, in addition to HIV, as possible reasons why AZT treated their HIV infections differently.

We considered whether there was a relationship between the HIV of D.M. and that of Trahan. The State's evidence established that D.M. could not be excluded as a possible source of the HIV injected into Trahan. Dr. Michael Metzker, tendered by the State as an expert in the general field of molecular genetics and in the area of phylogenetic analysis of HIV deoxyribonucleic acid (DNA) sequences, testified that his study of the relationship between the DNA of the HIV viruses of D.M. and Trahan could not establish direct transmission because, with the transmission of HIV from person to person, a virus alters or mutates its DNA. Dr. Metzker used phylogenetic analysis of the sequencing of the DNA of various HIV to attempt to reconstruct a history of transmission of the HIV. He explained that phylogenetic analysis is a series of methodologies used to establish the degree of relationship, if any, existing between viruses. After explaining the steps taken in his phylogenetic analysis of the HIV from D.M. and Trahan, Dr. Metzker found a "significant relation" between those two HIV when compared against a control group of HIV samples from Houston. The same

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[8] AZT is a drug used to treat HIV.

relationship was found when the HIV of D.M. and Trahan were compared with a control group of HIV samples from the Lafayette area.

On the other hand, Dr. Bette Korber, Defendant's expert witness on molecular epidemiology and phylogenetic analysis of HIV DNA, testified that there is no way to match viral DNA, such as HIV DNA, that has been transmitted from one person to another. According to Dr. Korber, the best that can be done is phylogenetic analysis, which statistically determines relatedness. Dr. Korber said that the HIV DNA of D.M. and Trahan were not totally unrelated and stated that, if the HIV DNA of D.M. and Trahan were unrelated, then they would have been located on different parts of the phylogenetic tree graph. However, the HIV DNA of D.M. and Trahan were on the same part of the phylogenetic tree.

In order to dispel pretrial controversy over the possibility of contamination or cross-contamination of HIV DNA samples, the State had Dr. David Mendell of the University of Michigan, an expert qualified in the field of evolutionary biology with a focus on molecular phylogenetics, perform a separate sequencing of the HIV DNA of D.M. and Trahan. Dr. Mendell's sequences were studied by Dr. David Hillis of the University of Texas, an expert in the field of phylogenetic analysis of HIV DNA sequences, who found the two test results were consistent. Dr. Hillis stated that "the viruses present in [D.M.] and Janice Trahan were the most closely related sequences in the analysis, and as closely related to sequences isolated that two individuals could be." He further testified, that in his opinion, there was "no evidence whatsoever for any contamination."

Defendant's experts also attacked the statistical analysis of relatedness on another level. They contended that the control group of HIV samples from Lafayette should have been individuals similar to Trahan and D.M., that is, heterosexual,

non-intravenous drug abusing females and homosexual males infected in the 1994 time frame.

As we have stated herein, the State did not argue that its tests proved D.M. was the source of the HIV given to Trahan; instead, the State relied upon the tests and the testimony of its experts to serve as additional circumstantial evidence of Defendant's guilt. The jury heard the testimony of the State's and Defendant's expert witnesses, who were all eminently qualified in the field of DNA analysis of HIV, and decided the case accordingly. We will not invade the jury's discretionary fact-finding function on this issue. We also note that the experts' conclusions concerned only one issue in this complicated case, and none of the experts' testimony addressed the other circumstantial and direct evidence of Defendant's guilt.

Defendant also claims that the State did not prove that Trahan's Hepatitis C infection resulted from an injection of the Hepatitis C-tainted blood of L.L. The State presented the evidence concerning L.L. to establish a scheme by Defendant to improperly obtain tainted blood and cover-up his actions. That same evidence concerning L.L. was also proof of Defendant's intent in early August 1994. Finally, the evidence showed that L.L. was still receiving Interferon treatment and that she was not told she was in remission as of August 2, 1994. That evidence also contradicts Defendant's expert witness' testimony that L.L.'s Hepatitis C virus could not have infected Trahan in early August 1994.

In contending that the State failed to exclude other sources of HIV infection for Trahan, Defendant emphasizes the fact that, although Trahan had more than three sexual partners, she only revealed that many to Sellers and Dr. Daigle. As we have noted, Sellers' responsibility, as Infection Control Coordinator, was to counsel employees who were exposed to infectious diseases and make recommendations as to whether they should remain on the job, be transferred to another job,

or stop working at the hospital. Her duties did not include determining how many sexual partners an employee had or the identities of these sexual partners. She testified that, when Trahan told her about the three men, she was "thinking out loud" as if "in a stream of consciousness." Sellers also testified that she did not ask Trahan about any of her sexual partners. Further, in Dr. Daigle's testimony, we can find no instance in which he asked Trahan to name all of her sexual partners. Finally, Trahan forthrightly revealed intimate details about her sexual history. Other than mere accusation, Defendant did not establish that Trahan had sexual partners other than the seven men mentioned at trial, and none of them had the HIV or Hepatitis C virus.

Defendant's actions after August 4, 1994, are as incriminating as his actions on August 2 and 4, 1994. There was testimony supporting a finding that Defendant tried to hide the jot book containing the entries for L.L.'s and D.M.'s blood draws by concealing the notebook at the bottom of a storage box containing 1982 files, and then placing other heavy storage boxes on top of this box. Given this evidence, the jury could have reasonably determined that Defendant injured his back in an attempt to conceal the jot book. There was also testimony that Defendant told his wife and treating physician that he injured himself lifting heavy boxes at his office in August 1994. Additionally, the medical file or chart of D.M. disappeared from the Defendant's office, but reappeared at the office of Defendant's attorney over one year after the initial search for the record. The jury apparently believed the State's theory that the medical chart of D.M. had been "doctored" because it contained no reference to the August 4, 1999 blood draw; yet, the super bill issued on August 4, 1994, and the jot book contained references to blood being drawn from D.M. on this date.

Louisiana courts have admitted evidence of the acts of an accused that obstruct justice or avoid punishment for the

current crime with which he is charged because this evidence may constitute admissions of guilt by conduct. *State v. Broussard*, 94-40 (La.App. 3 Cir. 11/23/94); 649 So.2d 726. Evidence of an attempt to conceal evidence indicates a consciousness of guilt and, therefore, is one of the circumstances from which a jury may infer guilt. For example, in *State v. Harvey,* 26,613 (La.App. 2 Cir. 1/25/95); 649 So.2d 783, *writ denied*, 95-0430, 95-0625 (La. 6/30/95); 657 So. 2d 1026, 1028, the trial court admitted evidence that, after a police officer accused of murdering his wife was released on bail, a cassette recorder that recorded all telephone conversations disappeared. The defendant in *Harvey* did not know, that a relative of the victim had already found the tape recorder and removed the cassette tape containing incriminating telephone conversations. Defendant's consciousness of guilt was evidenced by his concealment or destruction of evidence. In the instant case, the jury would not have been unreasonable in finding that Defendant's actions after August 4, 1994, demonstrated his consciousness of guilt because he attempted to conceal and destroy evidence.

The State also presented evidence that Defendant used his professional status to mislead the physicians treating Trahan. He informed Dr. Mesa that he performed an HIV test on Trahan and the test was negative. When told that his former mistress was HIV positive, he adamantly stated that he knew he was HIV negative and refused to be tested. After August 4, 1994, he no longer had any sexual contact with Trahan. Accordingly, the jury could have reasonably concluded from this evidence that Defendant knew that he had not been exposed to HIV from his sexual relations with Trahan, because he knew precisely when and how she was infected with the disease.

The jury also heard conflicting evidence concerning the blood draw from D.M. Defendant relies on D.M.'s chart and the statements of his office personnel to establish that D.M.

did not have blood drawn at his office on August 4, 1994. However, the State presented evidence about the suspicious disappearance and reappearance of D.M.'s medical chart, as well as the inconsistencies between the chart, the jot book, the super bill, and the testimony of witnesses regarding the blood draw. The jury apparently made a credibility determination in favor of D.M. and against Defendant's employees. Both the direct and circumstantial evidence introduced at trial was sufficient to allow the jury to make a reasonable determination that the tainted blood was drawn from D.M. pursuant to Defendant's orders on August 4, 1994.

Trahan's testimony established that the injection was given on August 4, 1994, and the State introduced corroborating evidence in the form of Defendant's cell phone bill showing he called Trahan at 10:26 p.m. that evening. Defendant offered contradicting evidence, primarily the testimony of his wife, concerning the period of time that she did not see Defendant while she was bathing on August 4, 1994. There was also conflicting evidence regarding Defendant's back problem, and the jury was free to believe that he did not establish he was physically incapable of driving to Trahan's home, going inside to give her the injection, and then leaving quickly. This evidence was sufficient for the jury to reasonably conclude that the injection was administered by Defendant to Trahan.

Finally, the State introduced evidence that HIV is a fatal disease, that HIV-tainted blood was drawn from D.M. on Defendant's order, and that Defendant administered the injection to Trahan on the night in question. Furthermore, Trahan contracted HIV around this same time frame with no other reasonable explanation of infection, which further supports the conclusion that the injection was not a B-12 shot, but contained HIV-tainted blood. Thus, we find that, when all of the evidence presented is viewed in a light most favorable to the prosecution, a rational trier of fact could have

concluded that the State proved beyond a reasonable doubt that Defendant was guilty of the attempted second degree murder of Trahan.

ASSIGNMENT OF ERROR NUMBER TWO

By this assignment of error, Defendant claims the trial court erred when it denied his challenge for cause of prospective juror, Thomas Coleman. Since Defendant exercised all of his peremptory challenges, he argues this issue should be reviewed by this court. However, the State argues that Defendant did not object after the trial court denied his challenge for cause. Defendant contends that he is not bound to use the word "objection," but simply must inform the court of the ruling with which he disagrees. We agree. In this case, Defendant did inform the court of his challenge for cause, and we find that is sufficient to preserve the issue for appellate review.

A criminal defendant has the fundamental right to have a jury determine whether he may be guilty or innocent; whether the state proved all elements of the crime beyond a reasonable doubt. La. Const. art. I, § 17; *State v. Lacoste,* 256 La. 697, 237 So.2d 871 (1970). Nevertheless, this fundamental right would become meaningless if not guided by the principle that the jury should be impartial in order to ensure that the criminal defendant receives a fair trial. This principle does not mean that a criminal defendant has the right to be tried by a particular type of jury or juror, but it simply means that it is essential that the jury be impartial and competent. *State v. McLean*, 211 La. 413, 30 So. 2d 187 (1947); *State v. Lewis*, 98-904 (La.App. 3 Cir. 12/9/98); 724 So.2d 830, *writ denied*, 99-0438 (La. 11/12/99); 749 So.2d 649. To ensure that the jury is competent and impartial, La.Const. art. I, § 17 provides safeguards, such as the defendant's "right to full voir dire examination of prospective jurors and to challenge jurors peremptorily."

The purpose of voir dire is to test the competency and impartiality of prospective jurors to determine whether they are fit to serve on the jury. Voir dire is designed to uncover information about the prospective jurors, which may be used as a basis for challenges for cause or exercise of peremptory challenges. *State v. Berry*, 95-1610 (La.App. 1 Cir. 11/8/96); 684 So.2d 439, *writ denied*, 97-0278 (La. 10/10/97); 703 So.2d 603. When a defendant exposes the partiality of a juror, the juror may not be automatically excluded for cause. The state or the trial court may rehabilitate the juror by asking questions and obtaining answers demonstrating the juror's ability to decide the case impartially pursuant to law and evidence. Ultimately, the trial court has the power to determine whether or not a juror may be excused for cause. *State v. Turner*, 96-845 (La.App. 3 Cir. 3/5/97); 692 So.2d 612, *writ denied*, 97-2761 (La. 2/20/98); 709 So.2d 773.

To succeed on appeal with the claim that the trial court erroneously denied the challenge of a prospective juror for cause, a defendant must exhaust his peremptory challenges and show that the trial court's denial of his challenge for cause was an abuse of discretion. *State v. Cross*, 93-1189 (La. 6/30/95); 658 So.2d 683; *State v. Robertson*, 92-2660 (La. 1/14/94), 630 So.2d 1278; *appeal after remand*, 97-0177 (La. 3/4/98); 712 So.2d 8, *cert. denied*, 525 U.S. 882, 119 S.Ct. 190 (1998); *Turner*, 692 So.2d 612. Once these factors have been established, prejudice is presumed and need not be shown by the defendant. *Id.; Cross*, 658 So.2d 683. In Cross, the Louisiana Supreme Court stated that a trial court's erroneous ruling on a challenge for cause, depriving the defendant of one of his peremptory challenges, "constitutes a substantial violation of [the defendant's] constitutional and statutory rights., requiring reversal of the conviction and sentence." *In Turner,* 692 So.2d at 616, we wrote:

> The trial judge is vested with broad discretion in ruling on challenges for cause, and his ruling will be reversed

> only when a review of the entire voir dire reveals the judge abused his discretion. *State v. Robertson,* 630 So.2d 1278. "A trial judge's refusal to excuse a prospective juror for cause is not an abuse of discretion, notwithstanding that the juror has voiced an opinion seemingly prejudicial to the defense, where *subsequently, on further inquiry or instruction,* [the juror] has demonstrated a willingness and ability to decide the case impartially according to the law and the evidence." *Cross*, 658 So.2d at 687. *See also State v. Welcome*, 458 So.2d 1235 (La.1983), *cert. denied,* 470 U.S. 1088, 105 S.Ct. 1856, 85 L.Ed.2d 152; *State v. Passman*, 345 So.2d 874, 880 (La.1977). In this case, defendant exhausted all of his peremptory challenges. Thus, the only question left for our determination on appeal is whether the trial judge erred in denying defendant's challenge seeking to excuse [the prospective juror] from the jury venire for cause.

Therefore, we must consider whether the trial court committed error in denying Defendant's challenge for cause of juror Coleman. The voir dire examination of Coleman revealed that he was employed as a tape operator by the Channel Three television station in Lafayette, where he overheard reporters discussing the case. Although he had not expressed an opinion to others and had simply overheard the opinions of others, he testified that he felt what happened was wrong. Initially, he said that, based upon what he heard, he thought Defendant injected Trahan with HIV. However, Coleman stated that his opinion could change after learning all of the facts. Coleman said that he could put aside what he heard, be impartial, base his judgment on the facts presented in the courtroom, and follow the law as given by the judge. During questioning by Defendant, Coleman stated, "If you're innocent, you should be able to prove that you're innocent, during the trial." The trial court then explained the presumption of innocence, that is, that Defendant did not have to

prove his innocence or anything else and that the State had to prove guilt beyond a reasonable doubt before there could be a conviction. Coleman said he understood the presumption of innocence, and he explained that his understanding was that the failure of the State to prove Defendant was guilty was the same as the Defendant proving he was not guilty, and that he could not vote guilty in either situation.

We find that the trial court did not err in denying the challenge for cause. Coleman candidly admitted that he only knew bits and pieces of the case and not all of the facts. He said he only overheard some of the reporters state their opinions as to Defendant's guilt, but he had not formed a firm opinion since he did not know all of the facts. As a lay person, Coleman could not be expected to recite the law concerning the presumption of innocence and the burden of proof in criminal cases. Once the trial court explained the law to him, Coleman explained his understanding of the law and that he could follow the law. For those reasons, we hold that this case is distinguishable from *Turner*, 692 So.2d 612, where the prospective juror was never rehabilitated, but continued throughout voir dire to state that the defendant had to prove his innocence. Therefore, this assignment of error is without merit.

ASSIGNMENTS OF ERROR NUMBERS THREE AND FOUR

Defendant has argued these assignments of error together since they concern other crimes evidence, but has divided his argument into two parts. First, he argues that the State should not have been permitted to present evidence of the blood draw from L.L. Second, he claims that certain other evidence presented to establish his motive was inadmissible.

Generally, evidence of other acts of misconduct is inadmissible; however, there are statutory and jurisprudential exceptions to this exclusionary rule, particularly when the evidence of other acts tends to prove a material issue and has

independent relevance other than showing that the defendant is a person of bad character. *State v. Willis*, 98-434 (La.App. 3 Cir. 10/28/98); 721 So.2d 103, *writ denied*, 99-3309 (La. 5/5/00); ___So.2d___; *State v. Mitchell*, 94-521 (La.App. 3 Cir. 11/2/94); 649 So.2d 569.

Evidence of other crimes, wrongs, or acts is not admissible to prove the character of a person in order to show that he acted in conformity therewith. La.Code Evid. art. 404(B)(1). However, evidence of other crimes, wrongs, or acts may be admissible for other purposes which are listed in Article 404(B)(1).[9] In *State v. Johnson*, 94-1379 (La. 11/27/95); 664 So.2d 94, *writ denied*, 94-1379 (La. 4/8/96); 671 So.2d 332, the supreme court provided an overview of the use of evidence of other crimes, wrongs, or acts. The general rule is that such evidence is inadmissible unless statutory and jurisprudential prerequisites are met. *See also State v. McArthur*, 97-2918 (La. 10/20/98); 719 So.2d 1037. This general rule ensures that a defendant, who has committed other crimes, wrongs, or acts, will not be convicted of a present offense simply because he is perceived as a "bad person," irrespective of the evidence of his guilt or innocence. "A conviction should be based on guilt and not on character." *Johnson*, 664 So.2d at 99; *State v. Jackson*, 98-277, p.7 (La.App. 3 Cir. 2/3/99); 734 So.2d 658, 663.

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[9] La.Code Evid. art. 404(B)(1) (emphasis added) reads:

> Other crimes, wrongs, or acts. (1) Except as provided in Article 412, evidence of other crimes, wrongs, or acts is not admissible to prove the character of a person in order to show that he acted in conformity therewith. *It may, however, be admissible for other purposes, such as proof of motive, opportunity, intent, preparation, plan, knowledge, identity, absence of mistake or accident,* provided that upon request by the accused, the prosecution in a criminal case shall provide reasonable notice in advance of trial, of the nature of any such evidence it intends to introduce at trial for such purposes, or when it relates to conduct that constitutes an integral part of the act or transaction that is the subject of the present proceeding.

The Blood Drawn from L.L.

Defendant claims that evidence that he improperly ordered a blood draw from L.L. put him on trial not only for the charged offense of attempting to murder Trahan by injecting her with HIV, but also for attempting to murder her by injecting her with the Hepatitis C virus. He contends that the State's theory that he injected Trahan with D.M.'s HIV was flawed because she suffered from Hepatitis C, as well as HIV, but D.M. did not suffer from Hepatitis C. According to Defendant, the State had to introduce an explanation of how Trahan contracted Hepatitis C. For that reason, Defendant argues the State turned to the August 2, 1994 blood draw from L.L. Defendant then claims that the State could not prove Trahan's Hepatitis C came from an injection of D.M.'s blood. Thus, he concludes the State introduced evidence of the blood draw from L.L. on August 2, 1994, under the ruse of "other crimes evidence."

We have already addressed the admissibility of this particular evidence in the pretrial writ opinion in *State v. Schmidt*, 97-249 (La.App. 3 Cir. 7/29/97); 699 So.2d 448, *writ denied*, 97-2220 (La. 12/19/97); 706 So.2d 451. In our opinion, we stated that the trial court did not err in its *preliminary* ruling that this evidence was admissible, but the ultimate question of admissibility would be addressed at the trial on the merits.

The State argues that similarities in the manner in which blood was drawn from L.L. and D.M. established Defendant's "motive, opportunity, intent, preparation, plan, knowledge, identity, absence of mistake or accident." The State further contends that the evidence also provided the context in which the crime was committed and that it related to conduct that constituted an integral part of the act or transaction that was the subject of the trial.

Other crimes evidence is admissible when it is intertwined with the charged offense to such an extent that the State could

not accurately present its case without reference to the evidence. *State v. Brewington*, 601 So.2d 656 (La. 1992). In such cases, the purpose served by admission of other crimes evidence is not to depict the defendant as a bad man, but, rather, to complete the story of the crime on trial by proving the immediate context of happenings near in time and place.

In the missing jot book, only the August 2, 1994 blood draw from L.L. and the August 4, 1994 blood draw from D.M. had the notations purple or lavender stopper or top for Defendant. The evidence of the blood draw from L.L. did not establish Defendant was a "bad person," but it was relevant to the material issue of Defendant's opportunity to obtain tainted blood, his preparation and planning for the injection of Trahan on August 4, 1994, and his guilty knowledge or absence of mistake or accident. Additionally, the evidence also presented an explanation of how Trahan became infected, not only with the HIV virus, but also the Hepatitis C virus. This countered Defendant's argument that, since Trahan was infected with both diseases, she could not have acquired the diseases through the injection she allegedly received.

Therefore, we find that the trial court did not abuse its discretion in admitting the evidence of L.L.'s blood draw of August 2, 1994.

The Remaining Evidence of Other Crimes, Wrongs, or Acts

The remaining acts, crimes, or wrongs of Defendant were introduced by the State to prove his motive and, ultimately, provide circumstantial evidence of his specific intent to kill Trahan. This evidence consisted of the following: a July 1990 rape of Trahan by Defendant; a late 1980's rape of Trahan by Defendant; Defendant calling USL to report that Trahan had cheated and should not be allowed to graduate; Defendant's threats against Trahan if she left him; Defendant's threats

against Bleichner; and Defendant's threats to distribute sexually explicit photographs of Trahan if she ended their relationship.

Defendant argues that intent was never an issue at trial. However, specific intent is an element of the crime of attempted second degree murder and, thus, intent was a material issue to be proven at trial. The State introduced the evidence to establish Defendant's motive and his pattern of conduct whenever Trahan attempted to end their relationship.

In *McArthur*, 719 So.2d at 1041-42, the Louisiana Supreme Court explained when other crimes evidence is admissible to establish the "motive" of a defendant:

> "'Motive' evidence reveals the state of mind or emotion that influenced the defendant to desire the result of the charged crime." D. Bryden and R. Park, *"Other Crimes" Evidence in Sex Offense Cases*, 1994 Minn. L.Rev. 529,541. . . . "In order to have independent relevance, the motive established by the other crimes must be more than a general one, such as gaining wealth, which could be the underlying basis for almost any crime; it must be a motive factually peculiar to the victim and the charged crime." *State v. Sutfleld*, 354 So.2d 1334, 1337 (La.1978) (evidence of heroin addiction inadmissible to show the motive for armed robbery); *see also State v. Martin*, 93-0285 (La.10/17/94), 645 So.2d 190 (evidence that defendant told four people that he had killed the decedent because she accused him of raping her after they had sexual intercourse was admissible to show his motive to commit murder). If . . . the other crimes evidence does not tend to show a motive to commit this particular crime against this particular victim, it merely shows a character trait and is inadmissible character evidence.

In the case at hand, Defendant's motive was factually peculiar to this victim and the charged offense, that is, committing an act with the specific intent to kill her. The above listed acts, wrongs, and other crimes were admissible to establish Defendant's motive to commit the crime of attempted murder of Trahan. Those acts, in fact, established his peculiar obsession with this particular woman and the lengths to which he would go to satisfy that obsession.

Therefore, we find that this assignment of error is without merit.

ASSIGNMENT OF ERROR NUMBER FIVE
and
DEFENDANT'S PRO SE ASSIGNMENT OF ERROR

These assignments of error raise the issue of the admissibility of the scientific analysis of D.M.'s and Trahan's HIV DNA. The issue of admissibility came before this court in a pretrial writ application and, after briefing and oral arguments from counsel, this court issued an opinion in *Schmidt*, 699 So.2d 448. In the writ opinion, we determined that the methodology used by Dr. Metzker in his investigation satisfied the standards of *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S.Ct. 2786 (1993); *State v. Foret*, 628 So.2d 1116 (La.1993), and *State v. Quatrevingt*, 93-1644 (La. 2/28/96); 670 So.2d 197, *cert. denied*, 519 U.S. 927, 117 S.Ct. 294 (1996) and, thus, his study was admissible. It is well-settled that a defendant may, once again, seek review of a pretrial ruling by the trial court even after the denial of a pretrial supervisory writ application seeking review of the same issue.

> The prior denial of supervisory writs does not bar reconsideration of an issue on appeal, nor does it prevent the appellate panel from reaching a different conclusion. *State v. Fontenot*, 550 So.2d. 179 (La.1989); *State v. Decuir*, 599 So.2d 358 (La.App. 3rd Cir.1992), *writ*

denied, 605 So.2d 1095 (La.1992). When a defendant does not present any additional evidence on this issue after the pre-trial ruling, the issue can be rejected on appeal. *See, e.g., State v. Regan*, 601 So.2d 5 (La.App. 3rd Cir.1992), *writ denied,* 610 So.2d 815 (La. 1993); *State v. Wright*, 564 So.2d 1269 (La.App. 4th Cir.1989). Judicial efficiency demands that this court accord great deference to its pre-trial decision unless it is apparent that the determination was patently erroneous and produced unjust results. *State v. Decuir, supra*, at 360.

State v. Hebert, 97-1742, p. 9 (La.App. 3 Cir. 6/3/98); 716 So.2d 63, 67-68, *writ denied*, 98-1813 (La. 11/13/98); 730 So.2d 455, *cert. denied*, ___U.S.___, 120 S.Ct. 1685 (2000), *quoting State v. Magee*, 93-643, p. 2 (La.App. 3 Cir. 10/5/94); 643 So.2d 497, 499.

Admissibility

At trial, Defendant did not object to the admissibility of Dr. Metzker's study or his conclusions concerning the "relatedness" of the DNA of the HIV from D.M. and Trahan. Instead, Defendant focused his attack on the manner in which Dr. Metzker performed the tests and the ultimate conclusions that could be drawn from the results. Although there was no objection at trial, Defendant raised his objection to admissibility in a pretrial written motion and, thus, he may raise the issue of admissibility again on appeal. La.Code Crim. P. art. 841(B); *State v. Parker*, 421 So.2d 834 (La. 1982), *cert. denied*, 460 U.S. 1044, 103 S.Ct. 1443 (1983).

During the pretrial hearing, Defendant challenged the reliability of the Metzker report on the ground that contamination had occurred. He also attacked the manner in which Dr. Metzker performed the scientific tests. In our pretrial opinion, we held: "Whether these protocols were properly applied is a question for the trier of fact and not a gatekeeping, function of the trial court." *Schmidt*, 699 So.2d at 457.

At trial, the jury heard testimony from Dr. Metzker and Dr. Hillis that the contamination occurred not with the HIV samples from D.M. and Trahan, but in two of the thirty-two control samples submitted from the Lafayette area. The contamination was the introduction of a laboratory strain of the HIV, HIV LAI, into two of the group control samples, but this contamination did not affect the samples from D.M. and Trahan. Dr. Hillis was of the opinion that the Metzker study was not contaminated, but suggested that another analysis of sequences extracted from separate blood samples of D.M. and Trahan be conducted. Therefore, in order to prove that the outcome of Dr. Metzker's study was not affected by the contamination or any other alleged flaw in methodology, new samples of the HIV of D.M. and Trahan were submitted to Dr. Mendell, who performed a second series of DNA sequencing. Dr. Mendell was of the opinion that the samples were not contaminated in any way. Dr. Hillis opined that Dr. Mendell's test results were consistent with Dr. Metzker's and that there was no evidence of any contamination whatsoever.

In our pretrial opinion, the phylogenetic analysis used by Dr. Metzker was subjected to the *Daubert/Foret/Quatrevingt* test and, based upon the evidence presented at the pre-trial hearing, was found admissible. At trial, the evidence presented by the State and Defendant showed how Dr. Mendell conducted the separate DNA sequencing of the HIV DNA from D.M. and Trahan and that his results were found to be consistent with Dr. Metzker's original results. Thus, the additional evidence served to strengthen the admissibility of the phylogenetic analysis of the DNA of D.M.'s and Trahan's HIV. Therefore, we shall adhere to our opinion regarding admissibility in the pretrial writ application.

Probative Value Versus Prejudicial Effect

The next issue is whether the probative value of this evidence is outweighed by its prejudicial effect. On this issue,

Defendant argues that, even though the State claims that the purpose of introducing the DNA analysis of the HIV of Trahan and D.M. was not to show D.M. as the source or to show direct transmission from D.M. to Trahan, the prejudicial effect of this evidence was to establish that Defendant, in fact, used the HIV obtained from D.M.'s blood to infect Trahan. On the other hand, the State argued that the purpose of the DNA analysis was to show "relatedness" of Trahan's and D.M.'s HIV DNA. We first addressed this argument in the pretrial opinion:

> The defendant concludes his attack upon the ruling of the trial court by arguing that the prejudicial impact of the evidence being offered outweighs its probative value. The weighing of these factors as set forth in La.Code Evid. art. 403 is the final step in the *Daubert/Foret/Quatrevingt* analysis. Dr. Gallaher opined that the Metzker-Gibbs study can only prove "relatedness" in the abstract. Therefore, the defendant argues that offering the Metzker-Gibbs study as evidence of "relatedness" in the abstract, based upon the protocol employed by Dr. Metzker, would be prejudicial because the jury would conclude it to be direct transmission. The defendant asserts that the ability of an audience to understand the nuance between relatedness and direct transmission would depend upon the sophistication of the audience.
>
> We note that the use of expert opinions or conclusions based on scientific tests to establish any key component of the state's case against an accused can be highly prejudicial. This prejudicial effect may arise not only in the context of scientifically unreliable testing, but also because of the potentially persuasive value of the very evidence itself. This prejudicial effect may be avoided if the trial court carefully weighs and controls this expert testimony. *Foret*, 628 So.2d 1116. We find that in this

> case, the trial court has carefully weighed the probative value against any prejudice, and we find no error in the trial court's rulings.

Schmidt, 699 So.2d at 457.

The testimony reveals that the State and Defendant thoroughly questioned the experts about what the Metzker study established and, more importantly, what it did not establish. The strength and weakness of the scientific evidence was fully explored by Defendant during his cross-examination of the State's expert witnesses. On the question of admissibility of the Metzker study, we find that there is no merit to Defendant's arguments that the trial court erred in admitting that evidence. In essence, what Defendant is attacking is the persuasiveness or weight of the experts' testimony, a decision which is left to the trier of fact.

In its closing argument, the State argued that none of the expert witnesses could say that the HIV found in Trahan was unrelated to the HIV found in D.M. "Relatedness" or the degree of relationship between the HIV of D.M. and Trahan was an important issue in this case. It was important because the various experts testified that there was no way to scientifically test for transmission of HIV from one person to another person because the HIV DNA naturally mutates or evolves as it is passed from person to person. The experts, therefore, testified that the HIV of D.M. and Trahan were "related" and this bit of evidence may be considered incriminating. All incriminating evidence is, by its nature, prejudicial to a defendant, but that fact does not render the evidence inadmissible. We find that the Metzker study was sufficiently probative to outweigh its prejudicial effect, particularly when it is considered in the full context of Defendant's cross-examination of the State's witnesses and the criticisms of it by Defendant's expert witnesses.

Weight of Evidence

The next issue raised by Defendant attacks the weight of the DNA evidence. It is the State's position that, "The common thread of opinion of all of the scientific experts was that the viruses of D.M. and the victim were not *not* (sic) related." Even Dr. Bette Korber, one of the leading experts in the nation on phylogenetic analysis of the DNA of HIV, and one of Defendant's expert witnesses, testified that she could not say that the HIV of D.M. and HIV of Trahan were unrelated.

Defendant replies that, based on the pre-trial and trial testimony, all HIV viruses are related. Defendant's argument is that it is the *degree* of relatedness that is important and that the 7% variation between the HIV DNA of D.M. and Trahan, found in the statistical analysis of the two HIV DNA samples, was more consistent with an alternative source of transmission than with a direct transmission from D.M. to Trahan. To rebut that argument, the State offered Dr. Metzker's testimony to show that the DNA of the two HIV samples were significantly close in relationship. While Defendant cites the 7% variation, the State notes that the experts agreed that the HIV of D.M. and Trahan were related because they were located on the same part of the phylogenetic tree graph that represented the phylogenetic analysis.

Defendant further argued that the control group from Lafayette improperly altered the outcome of the analysis. Most of the samples in the Lafayette control group were homosexual males and not heterosexual females with the same risk factors as Trahan. Dr. Hillis testified that using a similar control group is not necessary for a proper analysis because no study has shown that certain HIV strains are associated with certain risk factors for transmission. On the other hand, Dr. William Gallaher, an expert in the field of

microbiology and molecular genetics, who testified on behalf of Defendant, disagreed and opined that it is best to match the risk factors.

Finally, Defendant attacked the Baylor laboratory where Dr. Metzker performed his tests, as well as the report issued by Dr. Metzker, for failing to meet the standards of forensic science. Another of Defendant's witnesses, Dr. Sudhir Sinha, an expert in quality assurance standards for forensic testing laboratories, stated that the matter was treated as an academic study and not as a criminal forensic investigation. He testified that there were certain mistakes and a lack of certain protocols in the Baylor study. However, Dr. Sinha acknowledged that there were no forensic laboratories in the United States that were equipped and available to conduct phylogenetic testing and analysis in 1995, the time of the Metzker study. He was also of the opinion that, if any errors occurred in the Metzker study, the same result may occur in a subsequent test. As we have noted previously, Dr. Mendell conducted the same tests as Dr. Metzker and obtained similar results.

When each side of a case presents qualified expert witnesses, whose conclusions or opinions differ, the jury must determine the weight to give those conclusions or opinions. The purpose of the testimony of an expert witness is to provide a basis of knowledge and background information on a subject. The jury's role, as the ultimate trier of fact, is to relate the background knowledge gained from the experts to the facts established by evidence at trial and to ultimately make a determination of guilt or innocence. *State v. Hillman*, 613 So.2d 1053 (La.App. 3 Cir.), *writ denied*, 617 So.2d 1181 (La.1993). Although a witness may be recognized by the trial court as an expert, the trier of fact remains free to accept or reject the expert's conclusions. *State v. Smith*, 96-261 (La.App. 3 Cir. 12/30/96); 687 So.2d 529, *writ denied*, 97-0314 (La. 6/30/97); 696 So.2d 1004. It is the jury's duty to

weigh the testimony given by all of the witnesses, including the expert witnesses. However, the underlying purpose of expert witness testimony interpreting scientific tests or evidence is simply to assist the jury.

Although we found that the phylogenetic analysis of the DNA of the HIV of D.M. and Trahan was admissible, whether or not this evidence proved that the HIV of D.M. was closely related to the HIV of Trahan is a question that goes to the weight of the evidence presented. It is improper for a reviewing court to reweigh that evidence. Rather, an appellate court determines whether that evidence, together with all the other evidence, was sufficient for the jury to reasonably conclude that a defendant was guilty of the crime for which he was convicted. In our opinion, from the other direct and circumstantial evidence presented, including the blood samples from D.M. and L.L., the missing jot book containing the August 2 and 4, 1994 notations, Defendant's insistence that he was not infected with HIV, the suspicious injection on August 4, 1994, and Trahan's infections within the time frame of the injection, the jury could have reasonably concluded without the need for the DNA evidence that Defendant was guilty beyond a reasonable doubt.

In *Caine*, 652 So.2d 611, there was absolutely no DNA analysis of any HIV because the victim in *Caine* was not HIV positive at the time of trial, even though the defendant who stabbed her with the needle was HIV positive when he committed the crime. Accordingly, even when unreliable DNA evidence is admitted at trial, we will not presume that such evidence is prejudicial to the defendant. In *Quatreving*, 670 So.2d 197, the supreme court found that the jury's verdict of guilty of first degree murder was surely unattributable to the inadmissible DNA testimony because the other direct and circumstantial evidence was sufficient to prove the defendant's guilt. In the present case, unlike in *Quatrevingt*, the DNA evidence was properly admitted. However, in this case,

the DNA evidence was not decisive of the State's case against Defendant, but was simply another piece of circumstantial evidence presented by the State to prove Defendant's guilt.

Therefore, this assignment of error is, likewise, without merit and is rejected.

ASSIGNMENT OF ERROR NUMBER SIX

In this assignment of error, Defendant complains of prosecutorial misconduct. However, a review of Defendant's arguments, as well as the record, reveals that he is attempting to present claims that were not properly preserved for appellate review. La.Code Crim.P. art. 841(A) provides:

> An irregularity or error cannot be availed of after verdict unless it was objected to at the time of occurrence. A bill of exceptions to rulings or orders is unnecessary. It is sufficient that a party, at the time the ruling or order of the court is made or sought, makes known to the court the action which he desires the court to take, or of his objections to the action of the court, and the grounds therefor.

The reason for the contemporaneous objection rule was set forth in *State v. Taylor*, 93-2201 (La. 2/28/96); 669 So.2d 364, 368, *cert. denied*, 519 U.S. 860, 117 S.Ct. 162 (1996) (citations omitted), as follows:

> [T]he contemporaneous objection rule contained in La.Code Crim.P. art. 841(A) and La.Code Evid. art. 103, does not frustrate the goal of efficiency. Instead, it is specifically designed to promote judicial efficiency by preventing a defendant from gambling for a favorable verdict and then, upon conviction, resorting to appeal on errors which either could have been avoided or corrected at the time or should have put an immediate halt to the proceedings.

Defendant first complains about the introduction of evidence that Trahan had three abortions during their ten-year affair. At no time did Defendant object at trial to the introduction of this evidence. In fact, he mentioned these abortions during his opening statement and thoroughly explored the matter during cross-examination of both Trahan and Dr. Daigle. Accordingly, this matter will not be addressed on appeal because Defendant not only failed to object to the introduction of this evidence, but also actively participated in presenting this evidence to the jury.

Defendant also argues that the State withheld the testimony of two witnesses that would have presented evidence favorable to his defense, namely his former employees, Alice Bryan and Barbara Powers. These two witnesses were available for Defendant to subpoena to testify. His other employees, Toni Lalonde and Geraldine Sonnier, were called as witnesses and testified on his behalf at trial. Defendant gives no reasons why Bryan and Powers were not subpoenaed and called as witnesses.

Oddly, in his opening statement, Defendant informed the jury that one of the defenses to the State's allegation that he was obsessed with Trahan was that he lost interest in her at the time of the injection on August 4, 1994, because he was having an affair with Bryan. Bryan did not testify at trial. However, during the testimony of Detective Craft, Defendant thoroughly cross-examined Detective Craft about his alleged threat to Bryan that she may be charged with a crime, such as obstruction of justice, if her trial testimony revealed she helped to cover up Defendant's crime. Defendant implied that Bryan informed one of his attorneys that she would not testify unless the State granted her immunity from prosecution. However, Defendant never subpoenaed Bryan, and we do not know precisely what she would have said that would have affected the verdict.

Furthermore, the trial court rejected Defendant's post verdict motion for new trial, which was grounded on the allegation that the State withheld statements made by Powers and on La.Code Crim.P. art. 851(3) newly discovered evidence. In holding that the potential testimony was not newly discovered evidence, the trial court held that Defendant was presumably well aware of Power's testimony, that he could have obtained it with reasonable diligence, and that it would have been merely cumulative.

In our view, Defendant is attempting to avoid the procedural bar of La. Code Crim. P. art. 841(A) by styling his objection as a claim of prosecutorial misconduct. Our review of the record reveals that Defendant employed a trial strategy that did not result in a favorable verdict. He is now trying to raise claims that were not the subject of contemporaneous objections at trial. Thus, we find this assignment of error is without merit.

ASSIGNMENT OF ERROR NUMBER SEVEN

In this assignment of error, Defendant addresses the excessiveness of the fifty-year sentence imposed upon him. The statutory range of sentence for attempted second degree murder in 1994 was not more than fifty years at hard labor. La. R.S. 14:27(D)(1). Thus, the trial court sentenced Defendant to serve the statutory maximum sentence. "Maximum sentences are reserved for the most egregious and blameworthy of offenders." *State v. Pyke*, 95-919, p. 7 (La. App. 3 Cir. 3/6/96); 670 So. 2d 713, 717. Accordingly, Defendant's sentence may appear harsh since he is a first offender. However, in *State v. Cook*, 95-2784 (La. 5131/96); 674 So-2d 957, *cent. denied*, 519 U.S. 1043, 117 S.Ct. 615 (1996), the Louisiana Supreme Court emphasized that the only relevant question on review of a sentence is whether the trial court abused its broad sentencing discretion and not whether another sentence might be more appropriate.

For us to find that this sentence is excessive, we must find the penalty imposed is so grossly disproportionate to the severity of the crime as to shock our sense of justice or that the sentence makes no measurable contribution to acceptable penal goals; and, therefore, it is nothing more than needless imposition of pain and suffering. *State v. Brown*, 94-1290 (La. 1/17/95); 648 So.2d 872; *State v. Campbell*, 404 So.2d 1205 (La. 1981); *State v. Dubroc*, 99-730 (La-App. 3 Cir. 12/15/99); 755 So.2d 297. The trial court is given wide discretion in imposing a sentence, and a sentence imposed within statutory limits will not be deemed excessive in the absence of manifest abuse of discretion. *State v. Anderson*, 98-492 (La.App. 3 Cir. 10/28/98); 721 So. 2d 1006, *writ denied*, 98-2976 (La. 3/19/99); 739 So.2d 781.

In the instant case, the trial court heard testimony of witnesses and argument of counsel, and it went into lengthy detail applying the sentencing guidelines set forth in La.Code Crim.P. art. 894.1 before imposing sentence. The trial court emphasized that the seriousness of the crime demanded a term of imprisonment, and to not impose such a sentence would deprecate the seriousness of Defendant's conduct. The trial court stated that the crime of attempted second degree murder is serious, but the medical inevitability associated with HIV infection accentuated the seriousness of Defendant's crime. Additionally, the trial court noted that there is currently no cure for HIV/AIDS and it is ultimately fatal. The trial court concluded from the evidence presented that Defendant planned his crime, that it was an act of deliberate cruelty against Trahan, that he used his status as a medical doctor to obtain the HIV and Hepatitis C viruses from his patients D.M. and L.L., and that he then forcibly administered the lethal injection to Trahan. Further, the trial court emphasized that Defendant, as a medical doctor, knew that Trahan, who was a nurse, could have infected others with HIV or Hepatitis C. The trial court concluded that the losses suffered by Trahan, such as severely altering her lifestyle,

losing her career as a nurse, suffering enormous financial loss, and knowing that the disease with which she is infected is fatal, were tremendous. Also, the trial court found that Defendant showed no remorse for his conduct, and that all of his statements made in court were self-serving. In considering the mitigating circumstances, the trial court found that Defendant had no prior criminal record, that he was a doctor who had practiced medicine for thirteen years in Lafayette, that he was married and had three children who relied on him for support,[10] that he maintained his innocence, and noted the parole eligibility provisions applicable to him as a first offender and one who is over the age of forty-five before his sentencing.

We find that the trial court did not abuse its sentencing discretion and, therefore, Defendant's sentence is not excessive, especially when considering that he intentionally infected Trahan with a fatal illness which can be spread from person to person. Thus, Defendant's act endangered not only Trahan, but her children (including her son by Defendant), her husband, and the patients with whom she came into contact with at Lafayette General Hospital. Also, since Defendant used his status as a medical doctor to obtain the HIV and Hepatitis C viruses from two of his patients, he dragged them and their medical conditions into the public arena. Defendant further used his professional status to mislead other physicians who were treating Trahan for a suspected viral infection and, thereby, prevented an earlier diagnosis and treatment of her HIV and Hepatitis C infections. He also attempted to conceal his actions by altering and concealing medical records. His actions were merciless and reprehensible, especially when committed by one to whom ultimate trust is given.

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[10] We note that the trial court did not consider the child that Defendant and Trahan had together.

We find that the sentence imposed upon Defendant is not excessive and that this assignment of error is without merit.

ERRORS PATENT

We review all appeals in accordance with La.Code Crim.P. art. 920 for errors patent on the face of the record. After reviewing the record, we find that there are two errors patent.

First, we find that the trial court sentenced Defendant within twenty-four hours of denying his Motion for Post Judgment Verdict of Aquittal and/or For New Trial, a violation of La.Code Crim.P. art. 873. Defendant originally filed the motion on January 14, 1999, and it was denied after a hearing on February 3, 1999. Subsequently, on February 12, 1999, Defendant filed a Motion to Reconsider Denial of Motion for New Trial. The trial court addressed the motion to reconsider the denial prior to sentencing by stating the following:

> We have, besides the sentencing, which is scheduled for today, a couple of, one other matter, actually, having to do with the Motion to Reconsider the Motion for New Trial and for Judgment Nothwithstanding the Verdict.
>
> Before we turn it over to you, Gentlemen, there is some slight confusion regarding whether or not a particular part of the Motion for New Trial and/or Judgment Notwithstanding the Verdict was addressed in my ruling. For the sake of completeness, I am going to proceed as though it had not been covered, and we will just sort of take it from the beginning. That has to do with the issue of testimony of Alice Bryan.

After hearing arguments relative to a charge that the State committed misconduct when Detective Craft threatened Bryan with prosecution if she testified, the trial court denied the motion to reconsider which, in fact, was its first ruling on the issue involving Bryan's testimony. The trial court then

proceeded with the sentencing hearing, where the Pre-Sentence Investigation report was discussed and Defendant introduced evidence concerning mitigating factors. After the introduction of the evidence and the arguments of counsel, the trial court discussed the factors it considered in determining the sentence to be imposed. The trial court then asked if Defendant was prepared for sentencing, to which defense counsel responded, "We are, Your Honor." Sentence was then imposed.

La.Code Crim.P. art. 873 provides, in pertinent part:

> If a motion for new trial, or in arrest of judgment, is filed, sentence shall not be imposed until at least twenty-four hours after the motion is overruled. If the defendant expressly waives a delay provided for in this article or pleads guilty, sentence may be imposed immediately.

In the interest of justice, we hold that the trial court actually reopened and ruled anew upon the motion for new trial at the sentencing hearing rather than merely clarifying its earlier ruling. Since the trial court reopened and ruled on the motion, Article 873's twenty-four-hour time delay applies.

Therefore, we must address whether Defendant waived the twenty-four-hour delay. In *State v. Flowers*, 337 So.2d 469 (La. 1976), the supreme court held the defendant expressly waived the delay by replying affirmatively when asked by the trial court if he wished to be sentenced that date. Our colleagues on both the first and fifth circuits have also found implicit waivers of Article 873's delay when the defendant announces his readiness for sentencing. *State v. Steward*, 95-1693 (La-App. 1 Cir. 9/27/96); 681 So.2d 1007; *State v. Lindsey*, 583 So.2d 1200 (La.App. 1 Cir. 1991), *writ denied*, 590 So.2d 588 (La.1992),[11] and *State v. Ferrell*, 94-702 (La.App. 5 Cir. 5130/95); 656 Sold 739, *writ denied*, 95-2360 (La. 4/18/97); 692 So.2d 433. In *State v. Diaz*, 93-1309 (La.

[11] The supreme court also stated, "The-result is correct."

App. 3 Cir. 4/6/94); 635 So. 2d 499, *writ denied*, 94-1189 (La. 9/16/94); 642 So.2d 191, this court noted for the first time the situation where neither the defendant nor his attorney objected to sentencing being held immediately after denial of their motion for new trial and they did not assign the Article 873 violation on appeal. We, however, declared that we could find that the defendant and his attorney impliedly waived the delay by their active participation in the sentencing hearing. Since the defendant received the minimum sentence under the statute, we found the error harmless.

We are cognizant of our recent decision *State v. Dronet*, 97-991 (La.App. 3 Cir. 11/4/98); 721 So. 2d 1038, where we found defense counsel's statement that he was ready for sentencing did not constitute a waiver of the twenty-four-hour delay required by Article 873. In *Dronet*, even though we could not find any prejudice as a result of the trial court's failure to observe the delay in sentencing, we noted the strict application of Article 873 as suggested by *State v. Augustine, 555 So.2d 1331* (La. 1990) and remanded the case for resentencing because the defendant challenged his sentence on appeal. *Id.* at 1040. *See also State v. Williams*, 96-37 (La.App. 3 Cir. 6/26/96); 677 So.2d 692. However, we can distinguish this case from *Dronet* since Defendant presented substantial evidence at his *scheduled* sentencing hearing following the trial court's denial of his motion to reconsider the motion for a new trial. Even though Defendant challenged his sentence on appeal, he can demonstrate no prejudice in the trial court's failure to wait twenty-four hours after the denial of the motion. To support our conclusion, we quote from the trial court's decision on sentencing:

> I've listened carefully to all of the evidence presented to me in the form of testimony here today, and in the form of letters received from concerned persons in the community on both sides of the issue. I have considered,

applied, and given weight to the sentencing guidelines provided by the Louisiana Code of Criminal Procedure, Article 894.1.

I have looked everywhere that I can look. I've given a great deal of thought over the past 4 months to this day, knowing that it would come. I have studied carefully everything that has been presented to me. I have invited any information that either side wished to present to me, so that when I do sentence the defendant, it will be with as much knowledge as I can possibly have about everything concerned.

I have looked everywhere for compelling reasons to exercise leniency in this case. Certainly, the defendant's life is unique among convicted felons. We don't normally see persons of his status in the community, his professional status for sentencing. I have listened to what everyone has said, with regard to his good works, and I have no reason to doubt them. But in the final analysis, the punishment must fit the crime. All of the good things that he has done in his life, in my view, cannot tip the balance of the scales, in light of the deliberate, cruel, and extremely serious crime that he has committed.

Clearly, the trial court carefully considered the sentence for some time before pronouncing it. There is no indication that a twenty-four-hour delay would have resulted in a lesser sentence, as suggested in *Augustine*, 555 So-2d 1331. Therefore, we find that Defendant implicitly waived the twenty-four-hour waiting period by participating in the sentencing hearing, responding affirmatively to the trial court's question, "[I]s your client prepared for sentencing?," and failing to lodge a contemporaneous objection when the trial court proceeded with sentencing.

Secondly, the trial court improperly informed Defendant that the prescriptive period for filing post conviction relief began on the date he was sentenced. According to La.Code Crim. P. art. 930.8, the prescriptive period begins when the judgment of conviction and sentence becomes final. Thus, the trial court is instructed to inform Defendant of the two-year prescriptive period by sending written notice to him within ten days of the rendition of this opinion and filing receipt of that notice in the record.

CONCLUSION

We hold that the evidence presented at trial was sufficient to prove that the defendant, Richard J. Schmidt, committed the attempted second degree murder of Janice Trahan by injecting her with HIV. Therefore, his conviction is affirmed. We instruct the trial court to inform Defendant of the correct provisions of La.Code Crim.P. art. 930.8 as set forth above.

AFFIRMED WITH INSTRUCTIONS.

APPENDIX C

COURT OF APPEAL, THIRD CIRCUIT
STATE OF LOUISIANA

[Jul 29, 1997]

NUMBER K97-249

STATE OF LOUISIANA,

Versus

RICHARD J. SCHMIDT.

On application for supervisory writs from the Fifteenth Judicial District Court, Parish of Lafayette, State of Louisiana, the Honorable Durwood W. Conque, District Judge, presiding.

Before THIBODEAUX, PETERS, and SULLIVAN, *Judges*.

PETERS, J.

The defendant, Richard J. Schmidt, is charged with the attempted second degree murder of Janice Trahan, in violation of La.R.S. 14:30.1 and La.R.S. 14:27, arising out of his alleged injection of a human immunodeficiency virus (HIV) into the victim. He has filed a pretrial supervisory writ application to this court, questioning the correctness of two rulings of the trial court concerning certain evidentiary issues which may arise in his upcoming trial. The two issues presented in this writ application are the admissibility of evidence of other crimes, wrongs, or acts of the defendant and the admissibility of a deoxyribonucleic acid (DNA)[1] analysis which purports to compare HIV found in the alleged victim with HIV found in another individual.

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[1] Deoxyribonucleic acid is the genetic material of all living things.

DISCUSSION OF THE RECORD

The writ application contains a partial transcript of testimony presented in two hearings at the trial court, and the defendant's brief contains certain allegations of fact not found in the transcript. For purposes of this writ, we assume those allegations to be true.

According to the writ application, the defendant is a Lafayette, Louisiana gastroenterologist. He and Ms. Trahan engaged in an extramarital affair beginning in 1984 and lasting for approximately ten years. During the affair, Ms. Trahan divorced her husband and obtained from Dr. Schmidt his promise that he would divorce his wife and marry her. However, the defendant never began divorce proceedings against his wife, and sometime in early 1994, Ms. Trahan concluded that the affair should come to an end. When she began dating other men, Dr. Schmidt responded by, among other things, separating from his wife. The separation occurred in May of 1994. However, on the defendant's birthday, July 18, 1994, Ms. Trahan tried to contact the defendant at his apartment. When she was not successful, she called his former home (where his wife was still residing). The call was placed at 5:00 a.m., and Dr. Schmidt answered the telephone. Being upset that the defendant had spent the previous night with his wife and concluding that Dr. Schmidt had no real intention of leaving his wife, Ms. Trahan broke off the relationship for a second time.

The defendant and Ms. Trahan continued to communicate with each other. In fact, after July 18, 1994, the defendant continued to administer a series of vitamin B12 injections to Ms. Trahan that he had previously administered. The source of the current criminal charge before this court is one of these injections. Specifically, Dr. Schmidt is charged with having intentionally injected Ms. Trahan with HIV on August 4, 1994. HIV is the virus which causes acquired immune

deficiency syndrome (AIDS), for which there is currently no cure and which has routinely proved itself to be a fatal disease.

According to the writ application, the defendant called Ms. Trahan on August 4, 1994, to inform her that he would come to her apartment later that day to administer a B12 injection. That evening, he appeared at her apartment and gave her an injection. According to Ms. Trahan, that injection was more painful than previous ones and thereafter her health began to deteriorate. On January 3, 1995, she learned that she was HIV-positive, and sometime thereafter, she learned that she also suffered from hepatitis C, the most serious form of hepatitis.

After learning she was infected with HIV and hepatitis C, Ms. Trahan contacted the Lafayette Parish District Attorney's office and accused the defendant of intentionally infecting her by means of the August 4, 1994 injection. The accusations were presented to a Lafayette Parish Grand Jury, which returned an indictment against Dr. Schmidt for attempted second degree murder. While the writ application does not contain a copy of the indictment or other clarifying pleadings, the defendant asserts in brief that the basis of the charge is the alleged injection of HIV and that the charge does not involve the hepatitis C condition. The state does not dispute this assertion.

OTHER ACTS EVIDENCE

During the course of the prosecution, the state gave the defendant notice that it intended to introduce evidence of a number of other acts of the defendant to prove motive, opportunity, intent, preparation, plan, knowledge, identity, and absence of mistake or accident pursuant to La.Code Evid. art. 404(B)(1). A pretrial hearing resulted in the trial court issuing individual rulings addressing the admissibility of each

of the acts identified by the state. The defendant has brought this writ application, questioning the correctness of one of those rulings.

The law regarding evidence of other crimes, wrongs, or acts is found in La.Code Evid. art. 404(B)(1) and *State v. Prieur*, 277 So.2d 126 (La. 1973). La.Code Evid. art. 404(B)(1) provides in part:

> Except as provided in Article 412, evidence of other crimes, wrongs, or acts is not admissible to prove the character of a person in order to show that he acted in conformity therewith. It may, however, be admissible for other purposes, such as proof of motive, opportunity, intent, preparation, plan, knowledge, identity, absence of mistake or accident . . . .

The exception provided in La.Code Evid. art. 412 is not applicable to the facts of this case. In *Prieur*, 277 So.2d 126, 130, the supreme court set forth five requirements to be met before other acts evidence could be admitted, and the requirement at issue in this case is as follows:

> Prerequisite to the admissibility of the evidence [of other acts or offenses] is a showing by the State that the evidence of other crimes is not merely repetitive and cumulative, is not a subterfuge for depicting the defendant's bad character or his propensity for bad behavior, and that it serves the actual purpose for which it is offered.

The ruling in question involves the state's assertion that on August 2, 1994, Dr. Schmidt caused blood to be drawn from LL,[2] one of his patients, without following proper office procedure and that the circumstances surrounding the event

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[2] While we recognize that the alleged sources of the HIV and the hepatitis C have been identified in the record, we will refer to them in this opinion by initials only.

were similar to the circumstances under which he is alleged to have acquired the tainted HIV blood with which he allegedly infected Ms. Trahan. The state contends that this incident with LL is one of only two instances where blood was drawn at the defendant's office and proper records were not kept. The other instance is alleged to have occurred on August 4, 1994, the date that the state contends Dr. Schmidt obtained the blood tainted with HIV from DM, another one of his patients. The state contends that LL's blood sample is admissible under La.Code Evid. art. 404(B)(1) because of its close proximity in time to the DM blood sample, the fact that LL was also the defendant's patient, and the fact that LL was being treated for hepatitis C.

At the hearing, LL testified that she suffered from hepatitis C and that in 1994 she was in the care of Dr. Schmidt for that condition. According to LL, on August 2, 1994, she saw Dr. Schmidt in his office and he requested that she allow him to take a blood sample for his private research project involving hepatitis C. After being assured that she would not be charged a fee, she consented to his request and a sample was drawn in the office by Dr. Schmidt's nurse, Geraldine Sonnier. LL testified that this was the only time a sample of her blood was taken at Dr. Schmidt's office. Normally, she had blood drawn for testing at a local hospital to assure that the expense would be covered by her insurance.

The state also called Ms. Sonnier to testify about the blood-drawing procedure employed in Dr. Schmidt's office. According to Ms. Sonnier, it was standard office policy that no blood be drawn from a patient without Dr. Schmidt's orders. When blood was to be drawn, the patient was taken to a procedure room within the office. There the patient's name, the blood work required, and the blood work performed were entered into a spiral notebook which always remained in the procedure room. After the entry was made, the appropriate blood sample was taken and a computer-generated accession

sticker was attached to the blood sample. A duplicate sticker was then placed in the spiral notebook next to the patient's name for identification purposes. The blood was then sent to a laboratory for analysis. When the results of the analysis were delivered to the doctor's office, a yellow marker was used to mark through the patient's name in the spiral notebook to indicate the receipt of the test results. The test results were placed in the patient's medical records. According to Ms. Sonnier, this record would also contain a notation concerning the tests ordered and the fact that the test had been performed.

Ms. Sonnier also testified that on occasion her instructions would include the code words "extra lavender," which meant that she was to draw two samples of blood. An entry in the spiral notebook dated August 4, 1994, suggests that an extra-lavender instruction was given concerning the taking of a blood sample from DM, but the entry does not contain a corresponding accession sticker. The importance of the incident concerning LL's testimony becomes apparent because the spiral notebook contains a similar extra lavender instruction for her on August 2, 1994, and also contains no corresponding accession sticker. Given the fact that it is DM's blood that allegedly is the source of the HIV which now infects Ms. Trahan and the fact that Ms. Trahan also suffers from hepatitis C, the state suggests that this violation of procedure is admissible under La.Code Evid. art. 404(B)(1).

The trial court found that the state had shown by clear and convincing evidence that the private drawing of LL's blood on August 2, 1994, could suggest to a trier of fact that, if the defendant had the opportunity to take blood in this improper manner, "maybe he had the opportunity to take someone else's blood that way. And it may have—it may have been in preparation for what he is accused of doing on August 4th." Additionally, the trial court concluded that the taking of LL's

blood "can show a pattern of an opportunity or a system or a pattern of taking blood and not properly documenting it or taking blood under false pretenses."

We first note that the trial court applied the wrong burden of proof concerning the admissibility of other acts evidence. La.Code Evid. art. 1104 provides:

> The burden of proof in a pretrial hearing held in accordance with *State v. Prieur*, 277 So.2d 126 (La. 1973), shall be identical to the burden of proof required by Federal Rules of Evidence Article IV, Rule 404.

In *State v. Crawford*, 95-1352 (La.App. 3 Cir. 4/3/96); 672 So.2d 197, *writ denied*, 96-1126 (La. 10/4/96); 679 So.2d 1379, this circuit, relying on *Huddleston v. United States*, 485 U.S. 681, 108 S.Ct. 1496 (1988), held that the state's burden of proof of "other crimes" is the preponderance standard rather than the clear-and-convincing standard.[3] Regardless of whether clear-and-convincing proof or a preponderance of proof is required, under the facts of this case, we find no error in the trial court's ruling.

However, we note that this is a *preliminary* finding and that *at this time* the evidence may be considered admissible but subject to later review at trial on the merits. The finding required for admissibility under La.Code Evid. art. 404(B) does not address the question of relevance versus prejudice required by La.Code Evid. art. 403. That is a question that can only be answered when the evidence is offered at trial.

DNA ANALYSIS

In order to develop the evidence needed for the prosecution of its case, the state consulted several experts about the feasibility of laboratory testing to compare the HIV taken

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[3] It is our understanding of *Huddleston* that the Supreme Court indicated that the proof required is less than even a preponderance of the evidence.

from different individuals. In this case, the obvious purpose of such a comparison was to determine if DM's HIV was the source of Ms. Trahan's HIV. The state ultimately employed the laboratory of Dr. Richard A. Gibbs at the Baylor College of Medicine in Houston, Texas. Michael J. Metzker,[4] who was then a doctoral candidate at the school, performed the requested comparison by use of a "phylogenetic" or "phylogenetic tree" analysis. Based on the results of this research he and Dr. Gibbs issued a report concerning the investigation and their conclusions. In that report, Dr. Metzker and Dr. Gibbs concluded that the HIV found in Ms. Trahan was "closely related" to the HIV found in DM. Further, they concluded that the testing data supported their hypothesis that the direction of the transmission of the HIV was from DM to Ms. Trahan. At the hearing on the admissibility of the evidence, the state informed the court that it intended to use the testimony of Dr. Metzker and Dr. Gibbs to establish only that the two HIV samples were closely related and not to prove actual transmission. Therefore, it is only the conclusion that the samples are closely related that is before the court. Dr. Schmidt contends this conclusion is inadmissible.

The general rule concerning admissibility of expert testimony is found in La.Code Evid. art. 702, which provides:

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

Prior to 1993, the general test for admissibility of expert scientific testimony involving new techniques was the

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[4] At the time of the hearing on the admissibility of the test results, Metzker had received his doctoral degree and was employed as a senior research biologist for Merck and Company, Merck Research Laboratory, Department of Human Genetics, in West Point, Pennsylvania.

"general acceptance" standard of *Frye v. United States*, 293 F. 1013, 1014 (D.C. Cir. 1923). In other words, an expert opinion based on a new scientific procedure or technique was not admissible unless the procedure or technique had been generally accepted as reliable by recognized authorities in the field.

In 1993, the United States Supreme Court rendered its decision in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, ___, 113 S.Ct. 2786, 2794 (1993), wherein it concluded that, with the adoption of the Federal Rules of Evidence,

> a rigid "general acceptance" requirement would be at odds with the "liberal thrust" of the Federal Rules and their "general approach of relaxing the traditional barriers to 'opinion' testimony." *Beech Aircraft Corp. v. Rainey*, 488 U.S. [153], at 169, 109 S.Ct. [439], at 450 [1988].

In *Daubert*, the Supreme Court suggested that the trial court should consider four factors in determining whether expert scientific evidence is reliable: (1) whether the theory or technique can be, and has been, tested; (2) whether it has been subjected to peer review and publication; (3) the known or potential rate of error of the theory or technique; and (4) whether the theory or technique is generally accepted in the scientific community. Thus, under the *Daubert* guidelines, general acceptance in the scientific community is only one of the factors to be considered. Under this evaluation procedure, the trial court assumes "gatekeeping responsibility" to ensure that scientific evidence admitted in a trial is both relevant and reliable. *Id.* Still, the focus of the trial court's inquiry is not without limits. The focus of the inquiry "must be solely on principles and methodology, not on the conclusions that they generate." *Id.* at ___, 113 S.Ct. at 2797.

Because La.Code Evid. art. 702 is identical to Rule 702 of the Federal Rules of Evidence, the Louisiana Supreme Court adopted the *Daubert* test as the test to be applied in Louisiana. *See State v. Foret*, 628 So.2d 1116 (La. 1993). In doing so, the supreme court noted that Louisiana had not previously followed the *Frye* test but had followed *State v. Catanese*, 368 So.2d 975 (La.1979), which had established standards different from those of *Frye*.

The use of DNA evidence to establish the identity of a defendant as an offender or to eliminate a defendant as a suspect in a criminal case is now well settled in Louisiana. *See State v. Quatrevingt*, 93-1644 (La. 2/28/96); 670 So.2d 197, *cent. denied*, __ U.S. __, 117 S.Ct. 294 (1996). La.R.S. 15:441.1 applies to DNA test results and simply provides that DNA profiles and genetic markers are relevant to "establish the identity of the offender." However, La.R.S. 15:441.1 does not attach a legal presumption to a particular DNA test result but states only a general policy that the evidence is relevant. *State v. Spencer*, 95-208, 95-328 (La.App. 3 Cir. 10/4/95); 663 So.2d 271. The issue in this case concerning the comparison of viral DNA, rather than human DNA, is *res nova*.

This court has recognized the potential for extreme prejudice if unreliable DNA test results are presented at trial. *See State v. Charles*, 602 So.2d 15 (La.App. 3 Cir.), *writ granted in part and denied in part*, 607 So.2d 566 (La.1992). Therefore, a defendant is entitled to a pretrial hearing on the admissibility of the DNA test results if such a hearing is requested, and the state has the burden of proof. *Spencer*, 663 So.2d 271.

One of the questions presented in this writ application involves the degree to which the trial court must consider the expert scientific testimony at the pretrial hearing in order to satisfy its gatekeeping function. The defendant contends that the trial court must not only determine whether the overall

methodology satisfies the *Daubert* tests but must also consider whether each step in the methodology was properly performed. He asserts that the supreme court's decision in *Quatrevingt* requires such an extended analysis.

At the hearing conducted in this case, the testimony of five experts was presented. Dr. Metzker, Dr. David M. Hillis, and Dr. Barbara Bowman testified for the state, and Dr. James Mullins and Dr. William R. Gallaher testified for the defendant. As previously noted, Dr. Metzker is currently a senior research biologist for Merck Research Laboratory in West Point, Pennsylvania. Each of the remaining expert witnesses has exceptional qualifications within his or her field based on his or her education, experience, and background.

Dr. Hillis is currently a professor of biology at the University of Texas and was recognized by the trial court as an expert in molecular phylogenetic analysis. Dr. Bowman is an associate research scientist at Children's Hospital, Oakland Research Institute, Oakland, California. She received her Ph.D. degree in biochemistry from the University of California at Berkeley. Her field of expertise is molecular evolution and phylogenetic analysis of DNA sequences. Dr. Mullins received a Ph.D. degree in cell biology and biochemistry from the University of Minnesota. He is currently a professor of microbiology at the University of Washington in Seattle. He was recognized by the trial court as an expert in molecular epidemiology. Dr. Gallaher holds a Ph.D. degree in microbiology and molecular genetics from Harvard University, Cambridge, Massachusetts. He was recognized by the trial court as an expert virologist and currently serves as a professor of microbiology, immunology and parasitology at Louisiana State University Medical Center in New Orleans.

The purpose of any scientific investigation or analysis is to test a hypothesis. The hypothesis tested in the Metzker-Gibbs study was that the HIV found in DM was the same as that

found in Ms. Trahan. The scientific method used was phylogenetic analysis or phylogenetic tree analysis, which, according to all the experts, is one of the common methods used in the analysis of HIV transmissions.

The defendant asserts two assignments of error addressing the admissibility of the Metzker-Gibbs conclusion that the two HIV samples were closely related. He contends that (1) the trial court erred in ruling that the state's HIV DNA evidence meets the appropriate standard of scientific reliability and (2) the trial court impermissibly limited the scope of the DNA hearing and the defendant's cross examination of the state's witnesses and his introduction, through his own experts, of evidence contrary to the testimony of the state's witnesses regarding the appropriate methodology, or lack thereof, for determining transmission and/or relatedness of HIV between two individuals. While stating in his second assignment of error that the trial court limited evidence concerning appropriate methodology, the essence of the defendant's complaint goes to the protocol applied to the methodology.

Both Dr. Hillis and Dr. Metzker testified as to the procedure employed in the testing process in this case. Dr. Hillis explained the process as follows:

> The first step was . . . to obtain the tissue samples from the individuals. The next step would be to extract DNA from those tissue samples. The step after that would be to amplify using the polymerase chain reaction, the abbreviated PRC, specific sequences from the HIV genome from this DNA, from those DNA samples. After those had been amplified from the polymerase chain reaction—then they would be subjected to primary sequence analysis so that the actual base pairs from the DNA sequences, the specific target regions of HIV would be sequenced. After the sequences were obtained, the sequences from the particular target individuals

would be aligned; and then after the aligned sequences were obtained, they would be subjected to phylogenetic analysis, and then the phylogenetic analysis would be subjected to statistical testing.

Thus, one can see that the phylogenetic analysis, as it appears on the phylogenetic tree, is but one step in the overall process.

Because the methodology applied to the entire process is only as good as the methodology applied to each individual step, the trial court is required to evaluate each step separately and apply the *Daubert* criteria. As an example, if the method in which the blood samples were taken were not acceptable pursuant to *Daubert*, it would not matter that the methodology of the phylogenetic analysis was acceptable. The lack of acceptance of the first step would render the results of the entire process inadmissible.

The state's experts testified that the method used by Dr. Metzker in each step of his testing process was generally accepted in the scientific community, had been written about in published reviews, and had been subjected to peer review. Dr. Hillis testified that he had personally performed studies to test the accuracy of phylogenetic analysis results and had written articles concerning the subject. He did not agree with the defendant's argument that HIV DNA mutates or changes at such a rate that it makes any testing unreliable. In his opinion, phylogenetic analysis could accurately detect similarities in HIV strains if samples were taken and tested eight years in the future. Dr. Hillis testified that the purpose of phylogenetic analysis of DNA sequences "is to reconstruct the relationships among the DNA sequences to determine how the sequences are related to each other." In his opinion, phylogenetic analysis is the proper method to answer questions concerning relatedness of two HIV samples and is the method which other experts in the field would recommend. He also was of the opinion that Dr. Gibbs's laboratory

at Baylor College of Medicine is held in high esteem by the scientific community and is well qualified to perform the testing. His review of Dr. Metzker's report and data associated therewith caused him to conclude that the HIV samples were closely related.

Dr. Bowman has performed extensive research using phylogenetic analysis sequencing to compare HIV DNA and has authored articles on phylogenetic analysis. She agreed with Dr. Hillis that phylogenetic analysis is the best method to answer the question of relatedness of two HIV samples. In her opinion, phylogenetic analysis is the most theoretically sound, the most widely used, and "[h]ighly, wide[ly] accepted." Dr. Bowman testified that the statistical testing referred to by Dr. Hillis as the last step in the overall process adequately addressed the question of error within the phylogenetic analysis process. According to Dr. Bowman, this statistical testing, commonly referred to as "bootstrapping," tests the strength of the phylogenetic analysis on a case-by-case basis. While acknowledging that HIV DNA mutates more quickly than human DNA, Dr. Bowman indicated that this mutation does not occur so quickly that it would have affected the results in this case. In fact, Dr. Bowman estimated that phylogenetic analysis could be used with accuracy to compare HIV DNA from samples taken fifteen years after transmission, and she related a case to the trial court with which she was personally familiar wherein phylogenetic analysis was used to detect similarities in HIV taken from a mother and her child after eleven years.

The defendant does not repudiate the methodology associated with phylogenetic analysis. In fact, even Dr. Mullins admitted that the "collection of methodologies" used by Dr. Metzker were generally accepted in the scientific community. His complaint is that the Metzker-Gibbs analysis does not go far enough to insure reliability. According to Dr. Mullins, it is his expertise, molecular epidemiology, that utilizes the

appropriate standard for investigating viral DNA. While molecular epidemiology entails the use of many of the same steps as phylogenetic analysis, it also includes acquisition of additional information for use in the final analysis.[5] However, Dr. Mullins admitted that his expertise in phylogenetic analysis and bootstrapping was less than that of Dr. Hillis or Dr. Bowman.

Dr. Gallaher agreed with Dr. Mullins. He testified that, in his opinion, an epidemiological study is essential to evaluate the possible spread of infection from one source to another. However, he also acknowledged a lack of expertise in phylogenetic analysis. Additionally, he testified that phylogenetic analysis is appropriate and reliable to establish some degree of relationship between two HIV samples, although he did not consider it sufficient in this case.

Both Dr. Hillis and Dr. Bowman considered the Metzker-Gibbs method to be adequate given the task assigned. As pointed out by the state in its examination of Dr. Mullins, the epidemiological investigation is a factual investigation and not a scientific one. Thus, the findings would only go to the weight of the Metzker-Gibbs conclusion. The trial court concluded that the testimony of Dr. Mullins and Dr. Gallaher was "weakened" by their lack of expertise in phylogenetic analysis. Additionally, while being "impressed" with the concern of Dr. Mullins and Dr. Gallaher that additional investigation was needed, the trial court considered that concern in light of the state's expressed intention to offer the testimony of Dr. Metzker and Dr. Gibbs strictly to establish that the two HIV samples are "closely related," and not to prove that they are identical or that Ms. Trahan received the

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[5] An epidemiological investigation includes interviewing the individuals who submitted samples in the study to determine who their sexual partners were; what their lifestyle was; what, if any, potential risks for HIV transmission were present in the workplace; and what other risk factors, such as intravenous drug use or blood transfusions, were present.

virus from DM. In other words, it is simply another piece of circumstantial evidence tending to prove that the defendant obtained HIV from one of his patients and injected it into Ms. Trahan.

We conclude that the trial court did not err in finding that the methodology used by Dr. Metzker in his investigation satisfied the *Daubert* standards. However, the defendant further argues that the trial court erred in not considering errors in the protocol applied to each step of the Metzker-Gibbs process and in not allowing him to present evidence relative to such errors.

After reviewing the Metzker-Gibbs report, Dr. Mullins and Dr. Gallaher issued reports criticizing the testing procedures and laboratory practices used in the Gibbs laboratory. These criticisms all address the step-by-step procedure or protocol by which each scientific method in the overall testing process was performed. While the methodology must be acceptable under the *Daubert* standards, the methodology of each step must be performed in a proper manner for the test results to be valid. The standards or protocols for these individual steps, if improperly applied, can taint the evidence. The defendant suggests that as a part of the gatekeeping function, the trial court must not only consider whether the methodology of each step is acceptable under *Daubert*, but must also examine the steps of each protocol to determine if they were properly followed. The trial court declined to concern itself with the protocol issue and prohibited much of the testimony addressing such alleged defects. It was the trial court's determination that to do so would invade the province of the jury.

According to Dr. Mullins, the following protocols of molecular epidemiology were not incorporated into Dr. Metzker's study: separation of reagents and separate use of prepared reagents; recordation of storage of aliquot and specimen; sufficiently detailed statements of the protocols

used so that they could be reproduced or understood by any individual with ordinary skills within the field; and consideration of contamination, either by ruling out or detecting the source of the contamination. Dr. Gallaher agreed with Dr. Mullins that many of the protocols were not properly documented and that therefore the results could not be properly tested. He also asserted that experimental and investigative bias was potentially present because of the manner in which the experiments were performed and the overall process was handled. In his opinion, the potential for this bias made the results unreliable.

The Metzker-Gibbs study included comparison of the test results with other HIV samples collected in the Lafayette, Louisiana and Houston, Texas areas. The purpose of the comparison was to determine if the similarities found in the HIV of DM and Ms. Trahan were present in the random samples. No such similarities were detected. The defendant attacks the adequacy of the local controls used by Dr. Metzker in gathering and comparing these samples. The purpose of the local control group from the Lafayette area was to eliminate the possibility that the similarities between the HIV DNA of Ms. Trahan and DM were due to a common biostrain of HIV unique to the Lafayette area. As Dr. Metzker explained, after he had done the preliminary comparison of the HIV from Ms. Trahan and DM and found similarities between the DNA sequences, he then compared the DNA sequences of these two samples with a database of DNA sequences from HIV sources from the Houston, Texas area and found no similarity. Dr. Metzker then requested at least thirty random samples of blood from the HIV-positive population in the Lafayette area. The defendant complains that the local control samples should have been derived from individuals who had the same sexual preferences as Ms. Trahan and who were infected at the same time. Dr. Metzker said that he was unaware of any DNA sequence variation depending upon the specific risk group for HIV infection.

In arguing that the trial court should have allowed additional evidence concerning these alleged protocol violations, the defendant relies on the supreme court's decision in *Quatrevingt*, 670 So.2d 197. In that case, DNA evidence had been presented to establish that the defendant had murdered a twenty-two-year-old, mentally-handicapped woman in her New Orleans apartment. One of the steps in the DNA analysis involved a methodology employed by the testing agency to correct for band shifting during the testing process. The evidence revealed that no scientifically recognized and accepted protocol existed to apply the methodology. The supreme court found that the trial court erred in admitting the DNA evidence.

We find *Quatrevingt* to be distinguishable from this case. In *Quatrevingt*, the supreme court found the *methodology* to be unreliable *because there was no accepted protocol* to apply to it. In this case, there exists accepted protocols for each methodology applied in the testing process. Whether these protocols were properly applied is a question for the trier of fact and not a gatekeeping function of the trial court. Thus, we find no error in the trial court's refusal to expand the pretrial hearing for testimony concerning violations of established protocols.

The defendant concludes his attack upon the ruling of the trial court by arguing that the prejudicial impact of the evidence being offered outweighs its probative value. The weighing of these factors as set forth in La.Code Evid. art. 403 is the final step in the *Daubert/Foret/Quatrevingt* analysis. Dr. Gallaher opined that the Metzker-Gibbs study can only prove "relatedness" in the abstract. Therefore, the defendant argues that offering the Metzker-Gibbs study as evidence of "relatedness" in the abstract, based upon the protocol employed by Dr. Metzker, would be prejudicial because the jury would conclude it to be direct transmission. The defendant asserts that the ability of an audience to

understand the nuance between relatedness and direct transmission would depend upon the sophistication of the audience.

We note that the use of expert opinions or conclusions based on scientific tests to establish any key component of the state's case against an accused can be highly prejudicial. This prejudicial effect may arise not only in the context of scientifically unreliable testing, but also because of the potentially persuasive value of the very evidence itself. This prejudicial effect may be avoided if the trial court carefully weighs and controls this expert testimony. *State v. Foret*, 628 So.2d 1116 (La.1993). We find that in this case, the trial court has carefully weighed the probative value against any prejudice, and we find no error in the trial court's rulings.

DISPOSITION

For the foregoing reasons, we deny the writ application and remand this case to the trial court for further proceedings.

WRIT DENIED.

APPENDIX D

FIFTEENTH JUDICIAL DISTRICT COURT
LAFAYETTE PARISH, LOUISIANA

Docket No. 96CR73313

STATE OF LOUISIANA,

Versus

RICHARD J. SCHMIDT.

REASONS FOR RULING

This matter is before the court for preliminary resolution of all anticipated issues regarding the evidence intended for use at trial. Specifically, the defendant seeks to exclude evidence of other crimes, acts or wrongs as provided in *Louisiana Code of Evidence, Article 404 (b) (1),* and evidence of DNA profiling under the provisions of *Louisiana Code of Evidence, Articles 402, 403* and *702.*

The court has heard four days of testimony and argument. The issues involving other crimes, acts or wrongs are the subject of oral reasons for ruling recited in open court. These written reasons address only the issue of the admissibility of DNA profiling evidence.

Factual Background

The defendant, a physician specializing in gastroenterology, is charged with attempted second degree murder. He was engaged in a prolonged illicit romance with an intensive care unit nurse. The state charges that, when the nurse attempted to end the affair, the defendant intentionally injected her with blood from one of his patients, who had

tested positive for HIV, the virus that causes AIDS. Three months after the alleged injection, the nurse also tested positive for HIV. The state, as part of its investigation, conducted DNA tests to support the allegation that the victim was infected with HIV as the result of the injection administered by the defendant.

The DNA testing in this case is unique in that it does not involve the testing of human chromosomal DNA more commonly used to identify a suspect from blood, tissue or fluid found at a crime scene. This DNA "fingerprinting" is based on the fact that no two people have the exact same DNA except identical twins. Here the state conducted tests not on human DNA, but on the DNA of the virus known as HIV, to compare the DNA sequencing of the virus carried by the patient from whom the blood was allegedly drawn and that of the virus found in the nurse, who was allegedly injected with the patient's blood. As a control for the comparison, the state also analyzed the DNA sequences of viruses in 30 other HIV positive individuals in the Lafayette area.

The State's Position

To decide the admissibility of the DNA test results conducted in this case, understanding the precise evidence the state intends to use at trial is essential. The state has represented to the court that:

> ". . . the actual 'DNA evidence' sought to be introduced by the state consists of testimony from Drs. Michael L. Metzker and Richard A. Gibbs regarding the epidemiology if the HIV-1 Virus contained within the victim, Janice Trahan, of Donald McClelland (a patient of the defendant), and thirty geographic local controls . . . Dr. Metzker utilized the recognized technique of polymerase chain reaction (PCR) upon the samples in

> question . . . The state seeks to present, through the testimony of Drs. Metzker and Gibbs, the data generated mechanically from such testing.
>
> . . . Neither Drs. Metzker nor Gibbs will testify categorically that the HIV viruses within Janice Trahan and Donald McClelland are precisely the same. They will testify that the data generated by testing suggests that the HIV Isolates derived from Donald McClelland are closely related to the HIV Isolates derived from Janice Trahan. . . [and will be] offered as simply one piece of many pieces of circumstantial evidence. . ." *Memorandum of the State Regarding the Admissibility of the "DNA Evidence", (pp. 3 &4.)*

The state contends that its evidence is based on sound scientific testing and analytical methods that meet the requirements of law regarding relevance and reliability.

The Defendant's Position

The defendant argues that the state's "DNA evidence" is totally unreliable and should be excluded from the trial altogether. Essentially, the defendant contends that the evidence is the result of an experimental and impermissible expansion of DNA technology. Standard DNA profiling is reliable, according to the defendant, only because human genes are virtually identical and constant. HIV DNA sequences, on the other hand, are inherently non-identical and constantly changing. They cannot be analyzed with reliable results.

The defendant argues that the state's analysis used methodologies that are insufficiently developed and are not universally accepted by the scientific community. There is no standard for profiling viral DNA that can meet the requirements for admissibility in evidence at a criminal trial.

Finally, the defendant maintains that the state's testing laboratory failed to follow essential protocol(s). It did not

separate the various samples properly or protect them from contamination; did not adequately identify the control population; and did not employ critical epidemiological considerations.

The defendant urges that these deficiencies render the state's test results completely unreliable and inadmissible as evidence. *Memorandum in Support of Inadmissibility of the State's DNA Evidence, (pp. 2&3.)*

The Testimony

The court listened for two days to testimony from five expert witnesses regarding the HIV DNA testing, analysis and profiling carried out in this case. All of these witnesses are respected members of the scientific and academic communities. They are leaders in their fields with impressive credentials; they are all eminently qualified and articulate. For the most part, they know one another by reputation and through their published works. They respect one another, but they disagree strongly about the use of DNA profiles in this case.

Witnesses For the State:

David M. Hillis, Ph.D. in Biological Sciences, and currently Professor of Zoology at the University of Texas at Austin, was called by the state as an expert in the field of Molecular Genetics and Analysis. During the investigation of this case, the state contacted the Department of Molecular and Human Genetics at Baylor College of Medicine in Houston, Texas, to conduct DNA testing.

Dr. Hillis' function was to review the methodology, protocols, techniques and practices employed by the Baylor College of Medicine molecular biochemistry laboratory and comment on their reliability. In preparation for his testimony, he read the report generated by Baylor for this case *(Molecular Epidemiological Study of a Louisiana Criminal*

Case, Michael L. Metzker and Richard A. Gibbs). He also reviewed the laboratory notes and interviewed Dr. Metzker, who actually conducted the study.

Dr. Hillis testified that the methodology employed by the Baylor College of Medicine, *phylogenetic analysis*, is a widely used standard that enjoys general acceptance in the field of HIV transmission studies. In his view, the laboratory at Baylor College of Medicine is well recognized and held in high esteem. He confirmed that the data (the DNA sequences) tested at Baylor are indeed factually connected to this case, and that proper isolation of those sequences was accomplished in accord with generally accepted protocol.

Dr. Hillis is of the opinion that the two analytical techniques used by the Baylor College of Medicine, *polymerase chain reaction* (PCR) and *automated DNA sequencing,* are the primary tools used in most current HIV transmission studies. Baylor also utilized *Parsimony*, an analytical computer program, and *bootstrapping,* a statistical check in the analytical process. Both are very commonly used applications in the field of *phylogenetic* analysis, according to Dr. Hillis

Dr. Hillis does not agree with the defense notion that the tendency of HIV DNA to mutate or change at a more rapid rate than human DNA makes analysis of it unreliable. In fact, he says, viral DNA sequencing is a well established procedure widely used in the scientific community. The whole point of the methodology known as *phylogenetic analysis* is its usefulness for analyzing mutating sequences. It is recognized as the standard for studying viral DNA sequences, as opposed to the standard human DNA fingerprinting methodology, *restriction fragment length polymorphism* (RFLP). Dr. Hillis is of the strong opinion that the Baylor College of Medicine testing and analysis were conducted with strict adherence to standard scientific practices in the field of molecular genetics and analysis.

His conclusions are supported by the testimony of Barbara Hebbard Bowman, Ph.D. in Biochemistry, and currently an Associate Research Scientist at Children's Hospital Oakland Research Institute in Oakland, California, who testified for the state as an expert in the specific field of *phylogenetic analysis*. She confirmed that Baylor College of Medicine conducted the procedure in full compliance with every standard and protocol expected of a laboratory doing a viral transmission study. She, like Dr. Hillis, stood her ground under intense cross examination in defending the *phylogenetic analysis* methodology as well as the particular laboratory practices employed by Baylor.

Defense counsel questioned both these witnesses extensively about numerous criticisms of the Baylor testing procedure and laboratory practices viewed by the defendant as fatal to the validity of the study. These included the lack of a specific written protocol for the study, use of a single laboratory rather than two to insure greater separation of the samples, inadequate protection against contamination of samples, lack of detail in the laboratory notes regarding specific procedures, indications in those notes that some contamination had taken place, the failure to include epidemiological considerations in the study, and the failure to clearly identify a control population.

The record clearly reflects that Dr. Hillis and Dr. Bowman were able to dismiss each of these criticisms as either false, meaningless or of insufficient import to affect the results of the study. They testified that it is neither common nor expedient for laboratories to set forth in great detail each step of a test process in laboratory notes or reports. Agreeing that it is indeed important that proper protocol(s) are followed during the test procedure, these two witnesses satisfied any concerns in that regard during their interviews with Dr. Metzker. In addition, many steps in these procedures are so routine that it can be assumed that they were performed,

unless there is direct evidence that they were not. According to these witnesses, there were no red flags to indicate any sloppy lab work.

Both Dr. Hillis and Dr. Bowman testified that the principles and techniques used in this study can be, and have been, tested empirically. They have been subjected to peer review and publication. The rate of error associated with the methodology has been studied and is very low due to the existence and maintenance of standards and published protocols controlling the operation of the methodology. Finally, these witnesses made it clear that the scientific community concerned with viral transmission studies has widely accepted both the general methodology and the particular techniques employed by the Baylor College of Medicine molecular biochemistry laboratory in this case.

Michael L. Metzker, Ph.D. in Molecular Genetics, and currently Senior Research Biologist, Department of Human Genetics at Mereck Research Laboratories, who actually conducted the testing and analysis at Baylor College of Medicine, testified regarding the reliability of his methodology, techniques and protocol(s).

He maintained steadfastly under cross examination that he did actually follow each and every essential step required by standard protocol in the *phylogenetic analysis* methodology. He gave satisfactory answers to each of the criticisms raised by defense counsel about the details of his procedure.

Dr. Metzker's credibility was enhanced by his frank acknowledgment that he did incorporate two experimental techniques during his analysis in this case. These are recognized by him as new technology, not yet part of standard or generally accepted protocol associated with phylogenetic analysis. They are: (1) the use of an expanded matrix while running the Parsimony program; and, (2) an experimental methodology on the "signature sequences" portion of his analysis. He did not rely on these experimental techniques in

reaching his conclusions, but simply used them to bolster or further validate his results. The court has already ruled that no reference can be made to these experimental applications.

Witnesses For the Defense:

The defense first called James I. Mullins, Ph.D. in Cell Biology & Biochemistry, and currently Professor of Microbiology and Medicine at the University of Washington School of Medicine in Seattle, Washington to testify as an expert in *molecular epidemiology,* the methodology that, in his opinion, the Baylor laboratory sought to use in its study of HIV transmission, but failed to apply properly.

Molecular epidemiology is in reality, according to Dr. Mullins, a series of "linked protocols" with critical overriding principles that are essential to the proper application of each protocol. If any one "link" is omitted or performed improperly, the entire test is flawed. It is his opinion that Dr. Metzker did in fact fail to incorporate some of these critical protocols in his methodology, and he therefore totally refutes the Baylor study.

In a letter report to defense counsel (*Defendant's Exhibit 6*), Dr. Mullins listed no less than 52 criticisms of the Baylor analysis as a result of his evaluation. (*Exhibit D-6, pp. 4-15*). He was not permitted to testify regarding each and every deficiency reviewed in his letter at the hearing, but the court has read them in his report.

It is troubling that Dr. Mullins' critical evaluation of the work done at Baylor is based on nothing more than his examination of the "lab notes" and the Baylor report to the state. He did not interview either Dr. Metzker or Dr. Gibbs, nor did he visit the laboratory at Baylor College of Medicine to ascertain its routine practices and to inspect its facilities. His conclusions are, therefore, based on insufficient infor-

mation. His chief complaints (to all of which Dr. Metzker responded at the hearing) are that the Baylor laboratory:

1) Failed to separate the handling of critical specimens; (Dr. Metzker testified that the Baylor laboratory is specifically designed for handling specimens in separate rooms)

2) Failed to state its protocol; (Dr. Metzker testified that the Baylor laboratory uses a standard protocol purchased in printed form and kept at the facility. Dr. Hillis testified that published protocols are commonly adopted by laboratories to avoid rewriting one for each study) and,

3) Failed to consider the possibility of contamination. (Dr. Metzker testified that the Baylor laboratory routinely uses an apparatus designed to minimize the chance of contamination. Dr. Bowman testified that the signs of contamination noted by Dr. Mullins occurred at a non-critical stage of the testing and have no significance.)

In addition to the deficiencies noted by him, Dr. Mullins condemns the Baylor analysis further on the grounds that *phylogenetic analysis*, which was used in the Baylor study, is but one step, or one "protocol" in the "link of protocols" necessary to a molecular epidemiological study. Standing alone, *phylogenetic analysis* is of little or no value. He admitted quite candidly, however, that his expertise in *phylogenetic analysis,* and the use *of parsimony* and *bootstrapping* is not on par with that of Dr. Hillis or Dr. Bowman. He agreed that their knowledge and experience where these applications are concerned is greater than his. In light of this admission, the court must give greater credence to the testimony of Dr. Hillis and Dr. Bowman on these issues.

But Dr. Mullins does claim to have greater expertise than the witnesses for the state in the field of *epidemiology*, which is the study of disease as it affects groups of people, as opposed to individuals. He strongly believes that the con-

clusions recited by Dr. Metzker in his report cannot stand on *phylogenetic analysis* alone, because they are not supported by epidemiological considerations. He maintains that there is no existing standard for profiling viral DNA comparable to *restriction fragment length polymorphism* (RFLP), the standard for profiling human DNA, that can stand scrutiny without the use of extensive epidemiological comparison studies. He believes that this is so because human chromosomal DNA is a virtually stable entity, while the HIV DNA sequence mutates at a high rate.

This opinion is shared by the second defense witness, William Richard Gallaher, Ph.D. in Microbiology and Molecular Genetics, and currently Professor of Microbiology, Immunology and Parasitology at Louisiana State University Medical Center in New Orleans, Louisiana, who was called to testify as an expert in the field of Virology.

Dr. Gallaher was likewise asked to evaluate the Baylor study and to testify regarding its reliability for use in a criminal trial. He echoed Dr. Mullins' opinion that the Baylor test procedure was fatally flawed from its beginning. He is of the opinion that the very first step in the process, sampling, was critical and was not performed according to accepted practices. However, like Dr. Mullins, his conclusion is based simply on a reading of the report and laboratory notes. He did not interview Dr. Metzker or Dr. Gibbs, and he did not visit the laboratory. Therefore he cannot know what was done but not recorded.

Also, like Dr. Mullins, this witness had to confess a lack of expertise regarding *phylogenetic analysis*, the methodology used in the Baylor study. While he does profess to have special knowledge of human experiments, laboratory contamination and virology, his categorical dismissal of the Baylor study is weakened by his limited knowledge of the precise method used to conduct that study. This is especially

true in light of the testimony of those who are expert in *phylogenetic analysis*, Dr. Hillis and Dr. Bowman, who found no fault with the procedures used at Baylor.

Dr. Gallaher's and Dr. Mullins' opinions about the importance of epidemiological studies in viral transmission studies are more credible and of interest to the court because of their expertise in that field. Their opinions are essentially the same, with one important distinction. Dr. Mullins seems to assign no value whatever to *phylogenetic analysis* in the absence of epidemiological considerations. Dr. Gallaher's view is less stringent.

Dr. Gallaher testified that the DNA profiling technique used by Baylor, *phylogenetic analysis*, is appropriate and reliable to establish some degree of relatedness between two samples containing HIV. Therefore, its function, or value, is to narrow the scope of the inquiry by demonstrating that two DNA samples are indeed related. But, he cautions, the technique, standing alone, is not enough to show direct transmission of HIV from one person to another. It cannot go that extra distance without an appropriate study of epidemiological considerations. The court is impressed with the strength of his opinion in this regard, but it must be considered in light of the state's expressed intention not to introduce any scientific evidence of direct transmission.

The Exhibits

Both the state and the defense entered into evidence a number of exhibits. These include the *curricula vitae* of the five experts who testified and some of their published papers, demonstrating their expert status in the scientific community. other exhibits consisted of reports from the experts to the state or defense, some of which have already been cited above. Still others are examples of publications demonstrating submission of the principles, methodologies and techniques discussed here to peer scrutiny. The following is a discussion of some of these exhibits.

The Baylor Report:

Because repeated reference was made to it during the hearing, especially by defense counsel, the court feels compelled to comment further on the report of Dr. Metzker and Dr. Gibbs of the Baylor College of Medicine to the state. *(Molecular Epidemiological Study of a Louisiana Criminal Case) [Defendant's Exhibit 1]*

What is important about the report for purposes of this admissibility hearing is that it generates some confusion about how far the state intends to go with the results of the DNA analysis. The defendant has assumed that the state will attempt to use the DNA test results at trial to show a direct transmission of HIV from Donald McClelland to Janice Trahan. It is not difficult to understand how he makes this assumption. In that portion of the report entitled *Discussion,* beginning on page 9, the authors make the following statements:

> ". . . Based on significant bootstrapping proportions, reduced genetic distances, and unique signature markers, we conclude that a subset of HIV-1 isolates derived from the DM sample are closely related to the JT sample.
>
> Although our data establish linkage between HIV-1 isolates derived from DM and JT samples, these analyses do not provide evidence on the route by which infection occurred. These data also provide strong evidence that a drug-resistant isolate found in the HIV-1 population derived from the DM sample was transmitted and established infection in patient JT . . .
>
> In conclusion, our data supports the hypothesis that AZT-resistant isolate(s) from patient DM were transmitted and established in patient JT." *(Defendant's Exhibit 1, p.10).*

It is clear that the Baylor report goes farther than the state has declared it intends to go with the test results. The state has clearly stated its intention to limit the use of Baylor's

analysis to show only that the samples taken from McClelland and Trahan are "closely related", not that they are identical, and not that one received the virus from the other. The state has represented to the court further that its evidence related to the Baylor study will be presented through the testimony of Dr. Metzker and Dr. Gibbs, indicating that the report *(Defendant's Exhibit 1)* will not be used as evidence at trial. The state is not obliged to use conclusions that go beyond the intended purpose of the evidence.

The Publications and Treatises:

Several examples of published works dealing with the subject of DNA profiling in general and HIV DNA profiling, in particular were offered as exhibits. Most are highly technical and contain complex academic treatments of subjects related to molecular genetics, epidemiology and DNA sequencing. Of these, most were authored by one or more of the expert witnesses who testified at the hearing, and were offered, as stated above, to establish their degree of expertise.

These published works also serve to show that the underlying principles, methodologies and techniques employed in this case have been submitted to extensive peer review. They are worth listing here:

> *Experimental Phylogenetics: Generation of a Known Phylogeny*, David M. Hillis, James J. Bull, Mary E. White, Marty R. Badgett and Ian J. Molineux, *Science*, Vol. 255, 1992; [*State's Exhibit 2*]
>
> *Application and Accuracy of Molecular Phylogenies*, David M. Hillis, John P. Huelsenbeck and Clifford W. Cunningham, *Science*, Vol. 264, 1994; [*State's Exhibit 3*]
>
> *Accurate reconstruction of a known HIV-1 transmission history by phylogenetic tree analysis*, Thomas Leitner, David Escanilla, Christer Franzen, Mathias Uhlen and Jan Albert, *Proc. Natl. Acad. Sci. USA*, Vol. 93, 1996; [*State's Exhibit 4*]

Molecular Epidemiology of Aids, Barbara H. Bowman and Thomas J. White, *Aids Testing, A Comprehensive Guide to Technical, Medical, Social, Legal and Management Issues*, Second Ed., George Schochetman and J. Richard George, Editors; [*State's Exhibit 8*]

The Origin of HIV-1 isolate HYLV-lllB, Sheng-Yung P. Chang, Barbara H. Bowman, Judith B. Weiss, Rebecca E. Garcia and Thomas J. White, *Nature*, Vol. 363, 1993; [*State's Exhibit 9*]

Electrophoretically Uniform Fluorescent Dyes for Automated DNA Sequencing, Michael Metzker, Jing Lu and Richard A. Gibbs, *Science*, Vol. 271, 1996; [*State's Exhibit 12*]

Accurate determination of DNA in agarose gels using the novel algorithm GelScann(1.0), Michael L. Metzker, Kyle M. Allain and Richard A Gibbs, *Cabios*, Vol. 11 No. 2, 1995; [*State's Exhibit 13*]

Maintaining the Integrity of Human Immunodeficiency Virus Sequence Databases, Gerald H. Learn, Jr., Bette M. Korber, Brian Foley, Beatrice H. Hahn, Steven M. Wolinsky and James I. Mullins, *Journal of Virology*, Aug., 1996; [*Defendant's Exhibit 11*]

An Empirical Test of Bootstrapping as a Method for Assessing Confidence in Phylogenetic Analysis, David M. Hillis and James J. Bull, *Syst. Biol.*, 1993; [*Defendant's Exhibit 12*]

Molecular Epidemiology of HIV Transmission in a Dental Practice, Chin-Yih, Carol A. Ciesielski, Gerald Myers, Claudiu I. Bandea, Chi-Cheng Luo; Bette T. M. Korber, James I. Mullins, Gerald Schochetman, Ruth L. Berkelman, A. Nikki Economou, John J. Witte, Lawrence J. Furman, Glen A. Satten, Kersti A. MacInnes, James W. Curran, Harold W. Jaffe, *Science Vol. 256, 1992*; [*Defendant's Exhibit 13*]

Multiplex DNA Deletion Detection and Exon Sequencing of the Hypoxanthine Phosphoribosyltransferase Gene in Lesch-Nyan Families, Richard A. Gibbs, Phi-Nga Nguyen, Al Edwards, Andrew B. Civitello and C. Thomas Caskey, *Genomics* 7, 1990; [*Defendant's Exhibit 14*]

Signature Pattern Analysis: A Method for Assessing Viral Sequence Relatedness, Bette Korber and Gerald Myers, *Aids Research and Human Retroviros*, Vol. 8, No. 9, 1992; [*Defendant's Exhibit 19*]

Scncytium-Inducing (SI) Phenotype Suppression at Seroconversion after Intramuscular Inoculation of a Non-Syncytium-Inducing/SI Phenotypically Mixed Human Immunodeficiency Virus Population, Marion Cornelissen, Greetje Mulder-Kampinga, Jan Veenstra, Fokla Zorgdrager, Carla Kuiken, Susan Hartman, John Dekker, Lia van der Hoek, Cees Sol, Roel Coutinho and Jaap Goudsmit, *Journal of Virology*, Mar., 1995. [*Defendant's Exhibit 20*]

One additional exhibit was offered by the defendant that specifically addresses the problems facing the courts where the use of DNA is involved. It is a report entitled *DNA Technology in Forensic Science* (*Defendant's Exhibit 2*) published by the National Research Council in 1992 based on research done in 1991.

This NRC report deals only with human chromosomal DNA profiling, since HIV DNA analysis had yet to make its debut in the courtroom, but it does acknowledge the rapidly changing technology in DNA typing:

> "In recent years, advances in the techniques for mapping and sequencing the human genome have contributed to progress in both basic biology and medicine. The applications of these techniques have not been restricted to biology and medicine, however, but have also entered

> forensic science. Today, methods developed in basic *molecular biology laboratories* can potentially be used in *forensic science laboratories* in a matter of months" *DNA Technology in Forensic Science,* (Preface, p. vii.) [*Emphasis supplied*]

This report examines many of the same problems raised by the defense in this case and recommends procedures for insuring quality control for any particular DNA typing method used in a forensic setting. In effect, it advocates the development of uniform reliable systems for all forensic DNA typing systems, including those involving human chromosomal DNA, which has already gained a high rate of reliability with the courts.

The recommendations, as indicated in the *Preface* quoted above, are prompted by the movement of DNA typing and profiling to *forensic science laboratories*, as opposed to basic *molecular biology laboratories*. The purpose of the report is to espouse programs, including education, training and certification of personnel; specification and calibration of equipment, and a host of other measures to ensure some quality control for *forensic* laboratories. In effect the report indicates a desire that DNA analysis in *forensic* laboratories be governed by the highest standards of scientific rigor, such as that now found only in *molecular biology laboratories*.

The report tells us that statistical interpretation of DNA typing evidence has caused the greatest confusion and concern for the courts. Lack of uniformity and standards in the use of forensic DNA profiling has been caused mainly by the rapid rise of private forensic laboratories to meet the current demand. It calls for standards and safeguards to improve the levels of reliability and proficiency in such facilities.

The report clearly has little application to this case, which does not involve a private forensic laboratory. The Baylor College of Medicine laboratory that conducted the DNA analysis in this case is a molecular biology laboratory of the

type that is, according the National Research Council, the model of excellence for private forensic laboratories of the future.

In short, *DNA Technology in Forensic Science*, is not, as the defense contends, a mandate for higher standards of reliability and proficiency in the forensic context than those already practiced in basic molecular biology laboratories like the one at Baylor College of Medicine. It is, rather, a call for the development of regulatory systems which may help to bring forensic science laboratories up to a level of reliability and proficiency comparable to basic molecular biology laboratories.

The report does contain a section entitled, *Assessing the Admissibility of Evidence Based on Results of Further Advances in DNA Technology*, beginning on page 143, which contains some information that might be helpful to courts in understanding the issues surrounding new technology as it pertains to forensics. It states as follows:

> "New developments in DNA technology probably will and should be the subject of *in limine* hearings (those conducted by a court in deciding on admissibility), as has been the case in recent instances when present technology has been tested. As a general rule, generation of evidence with such new technology should be encouraged if it is adequately supported in court hearings. It is highly desirable that experts in molecular genetics and statistical analysis review new developments and pass on them at a variety of conferences and through published papers. Until there is some consensus in this field, results of using new techniques may not be admitted; a testing period for the new techniques will be needed to determine whether there are unforeseen errors or difficulties, and it will take time to complete the necessary data banks. Otherwise, the normal rules with respect to new developments can be relied on. In fact,

> new developments should present less difficulty than has been posed by present DNA typing technology, because much of the theory will have already been tested and accepted by the courts.

The NCR report goes on to discuss the kinds of new developments that might require an admissibility hearing (many of which have already been accepted since the publication of the report), and states that the purpose of these hearings is to evaluate the underlying principle of a scientific method of identification, the particular method for applying the principle, or the performance of a test in a particular case. The section concludes with the following statement:

> "In each case, the court can properly *limit inquiry to the substantially novel aspects of the technology*, focusing on whether the method is accepted for scientific applications and whether it has ben validated for forensic identification. Minor changes in protocol will typically not require pretrial hearings, unless they are likely to affect key issues. . ." [*Emphasis added*].

The Law

Background

Scientific evidence presented by expert witnesses is certainly not new to American courtrooms, but it is more common now than ever. Virtually every modem trial of any significance involves some sort of expert testimony explaining scientific evidence. There have been important changes through the years governing the use of this evidence.

Until the adoption of the *Federal Rules of Evidence* in 1975, the determination of whether a scientific theory could be used by a witness was based on the 1923 decision of *Frye v. United States*, 293 F.1013 (D.C. Cir.1923). *Frye* involved the forerunner of the modern polygraph machine, and applied what became known as the "general acceptance" test. This test required that, to be admissible in court, a scientific theory

or device must be well established in the scientific world. Experimental science was not welcomed in the courtroom until it reached the point where it was considered valid by a majority of scientists in the particular field involved.

For fifty years, the tough, conservative, "general acceptance" test was applied in federal and state courts to keep out much new scientific technology. Some of these included, besides the polygraph, a new radar device that was said to be capable of measuring the speed of an automobile and the innovative new scientific technique that could detect trace metals on human skin.

During the 1970's the "general acceptance" test came under heavy fire. Its opponents felt that it was too slow to keep up with fast paced technological advances. The courts were lagging behind the laboratories, and society was paying too high a price. The adoption of the new *Federal Rules of Evidence* in 1975 caused renewed fervor in the debate regarding the time-honored "general acceptance" test. Many thought that it had been replaced with a new standard. They were right.

By the end of the decade, the old *Frye* test had fallen into disfavor with some federal courts and in several states, Louisiana among them. The Louisiana Supreme Court decided its own polygraph case in *State v. Catanese*, 368 So.2d 975 (La. 1979), which criticized and rejected the "general acceptance" test as unreasonably rigid.

> "The general acceptance standard has been the subject of considerable scholarly criticism in recent years . . . Professor McCormick and others have suggested that there should be no special rule for the admissibility of polygraphic evidence. Instead, these scholars would submit the evidence in each case to a balancing process . . . The probative value of the evidence in each case would be balanced against reasons for its exclusion, such

> as the familiar dangers of prejudicing or misleading the jury and undue consumption of time, to determine the question of admissibility."

And so the "balancing test was born in Louisiana. Similar judicial proclamations in about a third of the country opened the door to the courtroom for expert witnesses whose testimony was based on theories and techniques not yet generally accepted in any scientific discipline. The new "balancing test" was refined and debated for several years. Critics felt that it was too unstructured and difficult to apply. Some new elements were needed to make it work better and give it structure.

Louisiana joined in a trend that was already gaining momentum in the federal system. That trend was toward mandating trial courts to carefully scrutinize expert testimony, and to let it into evidence only when it would be clearly helpful to the jury in understanding technical information. But it should not confuse or mislead them either. And it certainly shouldn't be admissible if it caused delays or a needless waste of the jury's time.

> ". . . [E]xpert testimony must be warranted and admissible, and its probative value must not be substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay, waste of time, or needless presentation of cumulative evidence. *Schwamb v. Delta Airlines, Inc.*, 516 So.2d 452 (La. App. 1 Cir. 1988).

***The Louisiana Code of Evidence and the Federal Rules of Evidence*:**

When the Louisiana legislature adopted the *Louisiana Code of Evidence* in 1988, which was very similar to the

Federal Rules of Evidence of 1975, the "balancing test" went from jursprudencial rule to statutory law. *Article 702, La. Code Evid.* provides:

> "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education, may testify thereto in the form of an opinion or otherwise."

This article has become known as the "helpfulness standard", one half of the "balancing test". The other half is *La. Code Evid. Art. 403*, which calls for evidence to be excluded, no matter how relevant or helpful it is:

> ". . . [I]f its probative value is substantially outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury, or by considerations of undue delay or waste of time."

Since the adoption of these new rules of evidence, both federal and state courts have discussed their impact and interpreted their meaning. Both agree that much latitude has been given to the trial courts.

> "Since the adoption of the Federal Rules of Evidence in 1975, we have accorded trial courts considerable discretion in determining the admissibility of opinion evidence by experts . . . This deference reflects the superior opportunity of the trial judge to gauge both the competence of the expert and the extent to which his opinion would be helpful to the jury . . . Basic policy questions that affect the very nature of a trial lie behind decisions to receive expert testimony. Under the Federal Rule of Evidence, experts not only explain evidence, but are themselves sources of evidence. These two roles, though related, are quite distinct. . . [O]ur point is that the ultimate issue in such cases can too easily become

> whatever an expert says it is, and trial courts must be wary lest the expert become nothing more than an advocate of policy before the jury. . . *In Re Air Crash Disaster at New Orleans, La. v. Pan American World Airways*, 795 F.2d 1230 (5 Cir.1986).

The problem is summed up very well in another federal court opinion, *Viterbo v. Dow Chemical Co.*, 826 F.2d 420 (5 Cir. 1987).

> "As a general rule, questions relating to the bases and sources of an expert's opinion affect the weight to be assigned that opinion rather than its admissibility and should be left for the jury's consideration . . . In some cases however, the source upon which an expert's opinion relies is of such little weight that the jury should not be permitted to receive that opinion."

The United States Supreme Court

Trial courts were finally given some guidance on how to determine whether an expert's testimony passes the "balancing test" by the United States Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 113 S.Ct. 2786, 125 L.Ed.2d 469 (1993). The court recognizes that:

> ". . .[O]f course, it would be unreasonale to conclude that the subject of scientific testimony must be 'known' to a certainty; arguably, there are no certainties in science. . . "Indeed, scientists do not assert that they know what is immutably true—they are committed to searching for new, temporary theories to explain, as best they can, phenonena. . . Science is not an encyclopedic body of knowledge about the universe. Instead, it represents a process for proposing and refining theoretical explanations about the world that are subject to further testing and refinement. . . But in order to qualify as 'scientific knowledge' an inference or assertion must

> be derived by the scientific method. Proposed testimony must be supported by appropriate validation—i.e. 'good grounds' based on what is known. In short, the requirement that an expert's testimony pertain to 'scientific knowledge' establishes a standard of evidentiary reliability." *Daubert, supra*, 2795. (In footnote 12, the court instructs us that *evidentiary reliability* simply means—*trustworthiness.*)

When the trial judge is faced with a decision regarding expert scientific testimony, he must determine at the outset whether the expert is proposing to testify to *scientific knowledge* that will *assist the trier of fact to* understand or determine a fact in issue.

> "This entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that reasoning or methodology properly can be applied to the facts in issue. . . . Many factors will bear on this inquiry, and we do not presume to set out a definitive checklist or test. But some general observations are appropriate." *Daubert supra*, 1296.

The *Daubert* opinion then suggests *four* considerations for trial courts trying to decide whether to admit expert testimony on scientific evidence. The *first* is whether the theory or technique can (and has been) tested. The *second* is whether it has been subjected to peer review and publication. *Third* is the rate of error, known or potential. And, *fourth*, is whether it enjoys widespread or general acceptance in the relevant scientific community. The court tells us that this "reliability approach" is not hard and fast:

> "The inquiry envisioned by Rule 702 is, we emphasize, a flexible one. Its overarching subject is the scientific validity—and thus the evidentiary relevance and reliability—of the principles that underlie a proposed

> submission. The focus, of course, must be solely on principles and methodology, not on the conclusions that they generate." *Daubert, supra*, 2797.

The Supreme Court, in *Daubert*, does not forget the "balancing test" as a vital companion to the "reliability approach". Evidence shouldn't be let in, even if it meets the requirements of relevance and reliability, when its probative value (its worth as part of the evidence in a case) is "*substantially* outweighed by the danger of unfair prejudice, confusion of the issues, or misleading the jury. . ." *Fed. R. Evid. 403.*

The court ended its opinion as follows:

> "To summarize: 'general acceptance' is not a necessary precondition to the admission of scientific evidence under the Federal Rules of Evidence, but the Rules of Evidence—especially Rule 702—do assign to the trial judge the task of ensuring that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand. Pertinent evidence based on scientifically valid principles will satisfy those demands". *Daubert, supra*, 2799.

The Louisiana Supreme Court

Since it first began to show up in our courts less than a decade ago, DNA analysis has been the subject of more than its share of judicial scrutiny. The body of jurisprudence involving DNA typing and sequencing is extensive for such a newcomer to the courtroom. Precedent-setting cases can be found in the records of both state and federal courts across the country. In Louisiana we have not to go far for guidance regarding the issue of admissibility of evidence involving DNA technology. Our own Supreme Court has spoken very recently on the subject in *State v. Quatrevingt*, 670 So.2d 197 (La. 1996).

State v. Quatrevingt, supra, begins with a reminder that the the general rule for the admissibility of any expert testimony related to scientific evidence is *Louisiana Code of Evidence* article 702, which is nearly identical to its federal counterpart:

> "If scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education, may testify thereto in the form of an opinion or otherwise."

To interpret this rule of evidence, the Louisiana Supreme Court has, in *State v. Foret,* 628 So.2d 1116 (La. 1993) and in *Quatrevingt, supra*, adopted the holding from the United States Supreme Court in *Daubert, supra*, and the four considerations listed there:

(1) The "testability" of the expert's theory or technique;

(2) Whether the theory or technique has been subjected to peer review and publication;

(3) The known or potential rate of error; and,

(4) Whether the methodology is generally accepted in the scientific community.

These guidelines for determining the reliability of scientific evidence will assist the trial court in balancing the probative value of the evidence against its prejudicial effect. The scientific evidence must, therefore, "rise to a threshold level of reliability", *Quatrevingt, supra*, 204. With regard to the relevance of DNA testing, specifically, the Supreme Court says:

> "Louisiana courts have recognized that DNA typing is sufficiently scientifically reliable to cross the admissibility threshold. . . In addition, both federal and other state courts have found that, in general, DNA profiling is

> a reliable technique and is admissible. We agree that the principles of DNA profiling and RFLP analysis are both relevant and are thus admissible." *Quatrevingt, supra*, 204.

Though cloaked with the shroud of general acceptance, DNA typing is constantly undergoing new technological advances, and each novel technique is subject to scrutiny by the courts. In *Quatrevingt, supra*, the novel technique was a specific method employed by a private laboratory to "correct" for bandshifting, a phenomenon involving the migration of DNA fragments in the lanes of gel used to separate molecules during electrophoresis (a function of RFLP). Bandshifting normally preludes a match, but the private laboratory, Lifecodes, claimed that its use of monomorphic probes allowed its technician to resituate the the bands as though they had not shifted, and thereby still declare a match.

The Supreme Court rejected Lifecodes' new technique as unreliable. It was admitted by the state's expert that Lifecodes was the only laboratory that attempts to correct for band-shifting and still declare a match. Lifecodes had submitted only one paper on the use of monomorphic probes to correct for bandshifting, which had not yet been published and was undergoing peer review. The defense experts testified that there was no way to correct for bandshifting, and that scientists generally ignored such results. Lifecodes created, "their own personal fudge factor that no one else accepts." *Daubert, supra*, 205. The court concluded:

> "Under the *Daubert/Foret* test, . . . the expert testimony elicited at trial shows that the practice of using monomorphic probes to correct for band shifting had not been proven reliable. The proponent of the evidence, the state, failed to demonstrate at the admissibility hearing: (1) the "testability" of the technique; (2) that the technique has been subjected to peer review and publication; (3) the known or potential rate of error; and (4) that the

> methodology is generally accepted in the scientific community. . . While the results of DNA and RFLP analysis are generally admissible in Louisiana so long as the trial court's "gatekeeping" function has been performed in accordance with *Daubert/Foret*, Lifecodes' use of monomorphic probes to correct for band shifting was not shown to be reliable in the trial court, and the trial court erred in admitting the DNA evidence." *Quatrevingt, supra*, 206.

Conclusions

The novel technology under scrutiny here is the analysis of HIV DNA. Human chromasomal DNA analysis is well established in our courtrooms, but DNA analysis of viruses, like the HIV, is new to the legal arena. And, they are somewhat different. The argument that they are not equally reliable is grounded on the assumption that the DNA of HIV mutates at a much more rapid rate than does the DNA found in human chromosomes.

The defendant argues that there is no standard methodology for the analysis of HIV DNA that has been validated by the scientific community. He contends that the Baylor College of Medicine molecular biochemistry laboratory employed incomplete or improper protocols and poor laboratory practices, such as would void the analysis of any viral DNA, but especially the HIV. Finally, he argues that the Baylor study failed to conduct sufficient epidemiological studies, precluding any conclusion that a direct transmission of HIV from one individual to another occurred.

The state has the burden of showing that the underlying principle of anaylizing HIV DNA is valid, and that the methodology and techniques employed are reliable. The state must show that the methods used in this case are (1) susceptible of empirical testing; (2) have been subjected to

peer review and publication; (3) have an acceptably low rate of error; and, (4) are generally accepted in the scientific community. The court finds that the state has met this burden.

The facts of this case are easily distinguishable from those in *Quatrevingt, supra*. In *Quatrevingt* the court rejected as unreliabile an unproven, undocumented, unpublished, and unaccepted technique used solely by a single private laboratory to correct for a negative result. The state, in *Quatrevingt*, failed to prove that the technique met any of the four factors to be considered.

Applying the same test to this case, the court finds that the testimony and the exhibits clearly show that the state has proved that the methodology known as *phylogenetic analysis* or *phylogenetic tree analysis* has been tested, has been widely published, has a low rate of error and is generally accepted in the pertinent scientific community. The defendant has not succeeded in refuting either the validity of the underlying principles, the methodology, the techniques or the practices employed by the molecular biochemistry laboratory at Baylor College of Medicine in its analysis of the HIV DNA in this case.

The court rules that the state's expert witnesses will be allowed to testify regarding the HIV DNA analysis performed in this case, and that the data generated thereby suggests that the HIV isolates derived from Donald McClelland and Janice Trahan are *closely related*.

The court need not decide whether the methodology used by the state's experts is valid or reliable to show *direct transmission* of HIV from one person to another, since the state does not intend to use it for that purpose. No reference by the state's expert witnesses to any likelihood or suggestion of direct transmission will be allowed at the trial.

Having determined relevance and reliability, to complete its "gatekeeper" function the court must apply the "balancing

test." The court does not find that the probative value of the DNA analysis is *substantially outweighed* by the danger of unfair prejudice, confusion of the issues or misleading the jury. The defendant would argue that the jury will not be capable of distinguishing between testimony of "close relationship" and "direct transmission", and that he will be thereby unduly prejudiced. The court disagrees.

It is not the function of the court as "gatekeeper" to shield the jury from *complex* or *highly technical* scientific evidence. Indeed, the very purpose of expert testimony is to explain principles and techniques that are beyond the knowledge of lay persons. But, beyond their *knowledge* is not the same as beyond their *comprehension.* The "gatekeeping" function of the court is to keep unreliable or false science away from the jury and to refuse to admit even valid and reliable science, if it hasn't much worth as evidence and will likely serve no purpose other than to delay, waste time, or confuse and mislead the jury.

In this case, it is clear that the expert testimony regarding the DNA analysis has probative value, and its worth as evidence is not *substantially outweighed* by the danger that it will confuse or mislead the jury. The evidence survives the "balancing test".

With sufficient safeguards, such as stringent precautions by the state to refrain from any reference to direct transmission, testimony by the defense experts, and carefully drafted jury instructions, the court has confidence that the jury will understand the circumstantial nature of the state's scientific evidence.

Abbeville, Louisiana, this 26th day of January, 1997.

Durwood Conque, Judge